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ABSTRACT

This 25-chapter anthology includes the ideas of many of the leading authorities on whole language and contains chapters on the meaning of whole language, the skills movement, reading and writing development, and teacher autonomy. Chapters are: "Whole Language: What's New?" (Bess Altwerger and others); "Language Arts Basics: Advocacy vs. Research" (Peter Hasselriis and Dorothy J. Watson); "Examining Instructional Assumptions: The Child as Informant" (Jerome C. Harste and Carolyn L. Burke); "Demonstrations, Engagement and Sensitivity: The Choice between People and Programs" (Frank Smith); "'Burn It at the Casket': Research, Reading Instruction, and Children's Learning of the First R" (Anne M. Bussis); "Early Phonics Instruction: Its Effect on Literacy Development" (Maryann Manning and others); "Reading Comprehension: From Cardboard Keys to Meaningful Text" (Barbara A. Lewis); "When Was 1864? Reading Comprehension--Making It Work" (Maryann Manning and others); "Authentic Language Arts Activities and the Construction of Knowledge" (Maryann Manning and others); "Early Spelling Development: What We Know and What We Do" (Gary Manning and Maryann Manning); "Social Interaction and Invented Spelling" (Constance Kamii and Marie Randazzo); "Kid Watching: An Alternative to Testing" (Yetta M. Goodman); "Literature as the Content of Reading" (Charlotte S. Huck); "Shared Book Experience: Teaching Reading Using Favorite Books" (Don Holdaway); "One-On-One Reading" (Roberta Long and others); "Fifth Graders Respond to a Changed Reading Program" (Cora Lee Five); "All Children Can Write" (Donald H. Graves); "Is That Writing--Or Are Those Marks Just a Figment of Your Curriculum?" (Carole Edelsky and Karen Smith); "Write? Isn't This Reading Class?" (Marie Dionisio); "Dialogue Journals: A Tool for ESL Teaching" (David L. Wallace); "The Author's Chair" (Don Graves and Jane Hansen); "Beyond Basal Readers: Taking Charge of Your Own Teaching" (Kenneth S. Goodman); "Restoring Power to Teachers: The Impact of 'Whole Language'" (Sharon J. Rich); "A Reflection on Reflective Practice in Teaching Reading and Writing" (Bernice J. Wolfson); "In the Process of Becoming Process Teachers" (Gary Manning and others). (RS)

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Whole Language:

Beliefs and Practices, K-8

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Whole Language:

Beliefs and Practices, K–8

Gary Manning and Maryann Manning, Editors

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INTRODUCTION

by Gary and Maryann Manning

The last decade or so has been a time of significant growth in understanding how students develop as readers and writers. In the past, classroom teachers used some sensible practices in teaching reading. They had sound intuition, they were trusted and supported, and they acted accordingly. In addition, they learned about reading and writing instruction from several reading authorities who had remarkable insight into the nature of student learning. Jeanette Veatch, for example, made teachers aware of individualized reading and provided a number of ideas for helping students develop as readers. May Hill Arbuthnot informed and excited teachers about the wonderful world of children's books. Roach Van Allen acquainted teachers with the importance of students' writing their own stories as well as being surrounded with meaningful print. And Mauree Applegate held teachers spellbound with her suggestions about English.

In the late sixties and early seventies, however, abandoning their intuition, many teachers flirted with or became committed to the skills movement. Some watched and even approved as the behaviorists chopped the act of reading into bits and pieces of isolated skills, placing those scraps on a skills continuum. Teachers continued to observe as tests were developed to assess student "mastery" of the bits and pieces. When the expected proficiency was not forthcoming, additional worksheets, workbooks, and drill activities were produced to ensure student mastery of these so-called essential skills that were promised as the solution to the nation's reading problems.

After watching students struggle over digraphs, diphthongs, and other isolated skills, we, like countless others, became disenchanted with this view of language learning. We noticed several things—students could bubble in the right answer on a test measuring skills; they could complete stacks of dittos, but often could not read or tell about what they read; others could read, but chose not to because it was not a pleasurable activity for them.

Fortunately, teachers have now recaptured their intuition about language learning, and their knowledge about student learning continues to be clarified and extended. Through sound scientific research and theory, outstanding educators have shown how students develop as readers and

writers. Ken and Yetta Goodman, for example, have been of special help to us and continue to be a source of information and inspiration as we grow in our understanding of literacy development. Many others have also assisted us in our thinking; several of these authorities are included in this anthology. In addition, we are grateful to the classroom teachers with whom we work regularly. As we interact with teachers in their classrooms, we learn from them, and, most importantly, we learn from the students themselves.

"Whole Language" refers to a set of beliefs about language learning. Several of these beliefs were presented in *Reading and Writing in the Primary Grades*, which we coauthored with Roberta Long and Bernice Wolfson (Washington, D.C.: National Education Association, 1987):

1. Reading and writing should be a natural outgrowth of oral language development.
2. Children construct their own knowledge from within.
3. Reading is comprehension, that is, creating meaning from text.
4. Communication is the main aim of writing.
5. Learning to read and write is a social process.
6. Risk taking and making mistakes are critical to reading and writing well.

Misunderstandings will arise about any view of language learning; some are beginning to surface about whole language. For instance, we listened recently to a sales representative give a report of a commercial whole-language phonics program; we also heard another speaker share ideas about the teaching of sight words in whole language. Educators must not let the benefits of a strong theoretical base be lost by treating whole language as another new term or gimmick for teaching reading and writing.

This anthology includes the ideas of many of the leading authorities on whole language. It contains chapters in several areas: the meaning of whole language, the skills movement and its lack of sound theory on how students construct knowledge about reading and writing, reading and writing development, and teacher autonomy. Each chapter begins with a brief overview. Although not every facet of whole language is discussed, references are provided for readers who would like additional information.

1. WHOLE LANGUAGE: WHAT'S NEW?

by Bess Altwerger, University of New Mexico, Albuquerque; and Carole Edelsky and Barbara M. Flores, Arizona State University, Tempe

According to Bess Altwerger, Carole Edelsky, and Barbara Flores, "Whole language is not practice. It is a set of beliefs, a perspective." Comparing it with other views of literacy learning, these authors emphasize that whole language is not a whole-word approach with the focus on "getting the words." Rather, it is one of constructing meaning from text, using cues that include words, syntax, semantics, and pragmatics. Neither is whole language teaching skills in context. One of its goals is to have students "become skilled language users," not just learners of separate language skills. Among the practices congruent with a whole-language view, the authors list journal writing and reading aloud to students.

Altwerger, Edelsky, and Flores also point out that whole language is not another term for language experience. Advocates of that approach, such as Roach Van Allen and Jeanette Veatch (who have made great contributions to better reading and writing programs), "do not state that reading consists of separate skills," but they do imply that students learn about reading from studying skills lessons. Finally, the authors note that whole language is not another round of open education. It rests on a solid theoretical base, which should prevent it from suffering the same fate as open education.

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More and more educators are warming to a new idea in education—Whole Language. Wherever we go, we hear statements which support Whole Language at the same time as they reveal questions or outright confusions about it. So while we are delighted with the increasing popularity, we wonder what it is that is popular: the idea of Whole Language? The label? Innovation per se?

Educational innovations have not fared well in the United States. Open Education was a recent casualty. It was widely distorted so that open space was substituted for openness of ideas, learning centers for learning-centeredness. The final irony is that it was judged a failure even though (because of the distortions) it was never implemented on any

broad scale (a few exceptions still exist—e.g., Prospect School in Vermont, Central Park East in New York City, and scattered classrooms elsewhere).

Whole Language is too good an idea to suffer such a fate. Widespread understanding of the substance, rather than widespread adoption of the label might be one way to prevent this possibility. Though Goodman's monograph, *What's Whole in Whole Language* (1986), will certainly help, we see a need to address the specific points of confusion and particular questions we are frequently asked about Whole Language. But first a brief description.

WHOLE LANGUAGE: WHAT IS IT?

First and foremost: Whole Language is *not* practice. It is a set of beliefs, a perspective. It must become practice but it is not the practice itself. Journals, book publishing, literature study, thematic science units and so forth do not make a classroom "Whole Language." Rather, these practices become Whole Language-like because the teacher has particular beliefs and intentions.

Whole Language is based on the following ideas: (a) language is for making meanings, for accomplishing purposes; (b) written language is language—thus what is true for language in general is true for written language; (c) the cuing systems of language (phonology in oral, orthography in written language, morphology, syntax, semantics, pragmatics) are always simultaneously present and interacting in any instance of language in use; (d) language use always occurs in a situation; (e) situations are critical to meaning-making.

Since language in use is taken to have at least the features listed above, the implication is that anyone using language (a baby, an adult, a second language learner) is using all systems in making meaning to accomplish purposes.

The key theoretical premise for Whole Language is that, the world over, babies acquire a language through actually using it, not through practicing its separate parts until some later date when the parts are assembled and the totality is finally used. The major assumption is that the model of acquisition through real use (not through practice exercises) is the best model for thinking about and helping with the learning of reading and writing and learning in general.

Language acquisition (both oral *and* written) is seen as natural—not in the sense of innate or inevitably unfolding, but natural in the sense that when language (oral or written) is an integral part of the functioning of a community and is used around and with neophytes, it is learned "incidentally" (Ferreiro and Teberosky, 1982; Lindfors, 1987).

Certain practices are especially congruent with a Whole Language framework. The overriding consideration regarding classroom reading and writing is that these be real reading and writing, not exercises in reading and writing (see Edelsky and Draper, in press, and Edelsky and Smith, 1984 for a full description of authenticity in reading and writing). Beyond that, Whole Language classrooms are rich in a variety of print. Little use is made of materials written specifically to teach reading or writing. Instead, Whole Language relies heavily on literature, on other print used for appropriate purposes (e.g., cake mix directions used for really making a cake rather than for finding short vowels), and on writing for varied purposes.

Because language is considered a tool for making sense of something else, the "something elses" (science, social studies topics) have prominence. Social studies and science topics receive a big chunk of the school day, providing contexts for much of the real reading and writing. Assessment is focused on constant kid watching (Goodman, 1985) and on documenting growth in children's actual work rather than on comparing scores on work substitutes.

Whole Language is thus a perspective on language and language acquisition with classroom implications extending far beyond literacy. Many descriptions of Whole Language appear in the literature (e.g., Edelsky, 1986; Edelsky, Draper, and Smith, 1983; Goodman, 1986; Goodman and Goodman, 1981; Harste, Woodward, and Burke, 1984; Newman, 1985).

Nevertheless, as we indicated, questions persist about what Whole Language is and what it isn't.

QUESTIONS ABOUT WHOLE LANGUAGE

We will address the following:

1. Is Whole Language another term for the whole word approach?
2. Is Whole Language a new way of saying "teach skills in context" with an emphasis on comprehension skills?
3. Is Whole Language a method? A "slant" that can be given to phonics programs, basals, or language arts software?
4. Is Whole Language a new term for Language Experience?
5. Is Whole Language a new term for Open Education?

These are all reasonable questions, having a foundation in current practice, recent history, or prevailing beliefs. Therefore, as we present each question, we will first ground that question with its own sensibleness before presenting a Whole Language answer to the question.

- *Is Whole Language a new term for the whole word approach?*

It could be . . .

Equating Whole Language with whole word may stem from a conception of reading as a matter of "getting the words." The Great Debate (Chall, 1967) was presented and continues to be thought of as a debate between two distinctly different conceptions of reading—look/say and phonics. Actually, the two are simply variations on a single theme—a phonics approach to "getting the words" and a look-say or whole word approach to "getting the words." Each has strong roots in behaviorism (i.e., getting the words means *saying* the words).

Conventional wisdom and school paraphernalia support the notion that reading is "getting the words," indeed that language development amounts to *knowing* words. Vocabulary exercises and tests are an important part of many language arts series, reading instruction and assessment programs. Moreover, vocabulary is one means of social class gatekeeping. Much, then, in the general and school cultures supports the idea that reading amounts to "getting the words" and that there are only two basics ways to "get words." It is reasonable to assume that Whole Language might be one of them.

But it isn't

The Whole Language view of reading is not one of getting the words but of constructing meaning (see the development of this view in the writings of K. Goodman (Gollasch, 1982). Word boundaries and lexical features are indeed used as cues, but meaning is created with many other cues too—syntax, semantics, pragmatics (including the reader's purpose, the setting, what the reader knows about the author's purpose). To believe that reading means getting words assumes that words have constant meanings; yet words like *Mary*, *lamb*, *had*, and *little* in the following examples derive meaning from the clauses which follow them.

1. Mary had a little lamb
   Its fleece was white as snow.
2. Mary had a little lamb
   She spilled mint jelly on her dress.
3. Mary had a little lamb
   It was such a difficult delivery the vet needed a drink.

(Example adapted from Trabaso, 1981.)

The varied meanings of *Mary*, *had*, *little*, and *lamb* provide evidence that as we read, we create tentative texts, assigning tentative within-text word meanings which must often be revised based on later cues.

A belief in reading as getting and *saying* the word implies that we have to know a word orally in order to read it (get its meaning). In fact, we learn words through reading just as we learn them through conversing. (How many of us learned words like *Penelope* and *orgy* through print and were later surprised to discover they did not rhyme with *antelope* and *morgue-y*?)

A vocabulary item is not part of a list of words in our brain but a set of potentials (e.g., meaning potentials, word class information, morphological possibilities, possible metaphorical usages) related to other sets of potentials, embedded in a variety of schemas. It is the set, the ranges, and the schema-type storage that permit us to relate the two lines in examples (1), (2), and (3) so that we create different meanings with them.

A belief that reading means getting words also assumes that word meanings, once "gotten," are added up to produce a text meaning. In fact, the whole far exceeds the sum of the parts. Print provides a text potential (Harste, Woodward, and Burke, 1984; Rosenblatt, 1978, 1985). When we read, we turn that potential into an actual instance, creating details of meaning that must be inferred from but do not appear in the printed cues.

The meaning, that is, can *never* be *in* the print. Whole Language focuses on texts-in-situations, creating meaningful texts by filling in. A whole word approach, by contrast, has a completely different focus, is based on a completely different conception of reading, and entertains faulty premises concerning words and word meanings.

- *Is Whole Language another term for teaching skills in context?*

It could be . . .

A popular view of language use (oral and written) is that it consists of isolatable skills (e.g., decoding skills, pronunciation skills, comprehension skills of finding the main idea, using details), separately learnable and separately teachable (DeFord, 1985; Harste and Burke, 1977). This is part of a more general assumption: If it is possible to identify subskills or subactivities in the proficient performance of any complex activity, then those subactivities should be taught separately. Tests of separate skills invade education to such an extent that they ensure that the idea of separate skills remains a given.

A similarly "small parts" viewpoint is common regarding *context*. Context is often seen as a background "part" *rather* than the crucial medium for as well as the inevitable creation of language use. Sometimes context is reduced to meaning merely the verbal setting (e.g., the story as background for the sentence, the sentence as background for the word). Such small parts conceptions of comprehension and context could

be readily applied to a new idea like Whole Language, which in fact relies heavily on *context* and *comprehension*.

Other sources add to the confusion. Beginning Whole Language educators, who do not yet know new ways of talking about their changed views, provide more grist for the skills-in-context mill. So do thoroughly Whole Language teachers who use such descriptions as survival strategies in order to teach according to their Whole Language beliefs in districts permitting only skills instruction. Thus, people have much evidence from the talk of others as well as from their own viewpoints regarding what constitutes written language and context for believing Whole Language is simply teaching skills in context with an emphasis on comprehension skills.

But it isn't

Again, the Whole Language view is that reading/writing are whole activities, that any separate skills or subactivities used outside the total activity are different from that subactivity used within the total activity. Moreover, the subactivity is not merely the behavior. It has a role to play in the total activity; it interacts with other subactivities; it engenders consequences. If the role, relationships, interactions, and consequences are taken away, what is left is only the behavior—meaningless in itself. It would be as if separate pedaling, handlebar holding, steering, and brake-applying did not need to be integrated, as if they could simply be added together to produce bike riding.

In authentic written language use, cues from one system have an effect on cues from other systems. Thus syntax influences phonology, permitting a reduced vowel when *can* is part of a verb (*the garbage /kən/ go over there*) but not when it is a noun (*the garbage /kæn/ is over there*). Syntax influences graphophonics so that the unit (initial *th* + vowel) is voiced for function words (*this*, *their*) but voiceless in content words (*thing*, *thistle*). Semantics controls syntactic parsing in such sentences as *flying planes can be dangerous*. Pragmatics is what permits variation in orthography (*lite/light*; *through/thru*).

It should be noted that the direction of influence is from high to low: Information from the higher system is required in order to make a decision about the lower. This is just the opposite of the basic skills hierarchy which begins at the supposed beginning—the smaller units and lower levels.

A major Whole Language goal is to help children use, not sever, these interrelationships among cuing systems. The means for achieving that goal is to engage children with authentic texts (versus textoids, as Hunt, in press, calls them) and in authentic reading and writing. A Whole

Language framework insists that we become "skilled language users" *not* that we "learn language skills." Altwerger and Resta (1986) have shown that many proficient readers cannot do skills exercises, while many poor readers can. That is, the activity of performing divisible subskills may have little or no relation to the indivisible activity of reading. It is the latter activity which interests Whole Language people.

- *Is Whole Language a method? A program? A "slant" for basals or phonics or other packaged programs?*

It could be . . .

A tendency to assume that the essence of something is the surface behavior rather than the underlying meaning is legitimized, in the case of Whole Language, by erroneous information from authoritative sources. Documents such as State Reading Guides describe Whole Language as "one of many *methods*." Publishers of instructional materials advertise Whole Language basals and Whole Language phonics programs. Additionally, many educators, anxious to avoid offending or taking a theoretical stand, justify their avoidance by claiming to be eclectic. Link a preference for eclecticism with errors in education documents and advertising pitches from publishers and it is easy to see how Whole Language comes to be (mis)understood as a method or another kind of basal series.

But it isn't

Whole Language is first of all a lens for viewing, a framework that insists that belief shapes practice. Equating it with a method is an error in level of abstraction. Each of the following is an example of one of many methods: writing chart stories with children, conducting spelling drills, holding writers' workshops. None of these are underlying viewpoints. The following are theoretical viewpoints: skills, Whole Language. Neither of these is a method.

Moreover, there are no essential component practices for a Whole Language viewpoint. Some practices are easily made congruent and are therefore typical in Whole Language classrooms (e.g., journals, reading aloud to children, silent reading, literature study, publishing books, content logs, content thematic units). However, none of these is essential. It would be possible, though impoverishing, to emphasize science projects and exclude literature, yet still have a Whole Language classroom. One could focus entirely on art, music, and drama (writing to publishers to obtain releases for play readings, writing off for catalogues of art openings, staging the school's own gala arts fair), or on a political issue within the community and never write any personal narratives and still have a Whole Language classroom. What *is* essential are component principles

or beliefs, including those listed in the earlier section describing Whole Language.

If thinking of Whole Language as method or component parts is a problem in mixing levels of abstraction, wishing to offer a little of everything, to be eclectic, constitutes magical thinking. How idyllic, how "nice" it would be to have no conflict in underlying positions, no basic contradictions. But there *are* basic contradictions (e.g., the idea that reading consists of separate skills contradicts the idea that reading does not consist of separate skills). There is no eclecticism at the level of underlying beliefs whether these beliefs are acknowledged or not. Like a liquid, practice takes the shape of whatever belief-container it is in (Browne, 1985).

Some materials, however, written for the instruction of separate reading or writing subskills conflict with Whole Language beliefs by definition. "Holistic" or not, phonics materials and basal series all entail simulations (quote-reading or quote-writing), either eliminating some subsystems, artificially highlighting others, or ensuring that the learners' purpose must be compliance with an assignment. Thus, the basic Whole Language belief—acquisition through use not exercise—is violated. The only way basal readers or phonics programs could be congruent with Whole Language beliefs would be for children to use them as data—for example, as documents in an historical study of changes in school culture. They could not be used for practicing or learning supposed subskills or written language, including comprehension as a subskill, and be congruent with Whole Language beliefs. (In Whole Language, if there is reading, there is comprehension; if there is no comprehension, there is no reading. Comprehension is not a subskill.)

Whole Language teachers *are* eclectic in the sense of having a large repertoire of materials, modes of interacting, ways of organizing classrooms, etc. Indeed, they are particularly sensitive to the need to vary their approaches with different children for different purposes. However, eclecticism usually means something else in the contexts in which we have heard it—something more like typical practices borrowed from conflicting paradigms, but unwittingly "biased" by one unacknowledged, unexamined single underlying paradigm. In contrast, Whole Language teachers try to be conscious of and reflect on their own underlying beliefs; they deliberately tie practice and theory.

- *Is Whole Language a new term for Language Experience Approach?*

It could be . . .

The two certainly share some ties in practice. Written statements

about Whole Language (Calkins, 1986; Edelsky, Draper, and Smith, 1983; Goodman, 1986; Newman, 1985) and written statements about the Language Experience Approach (Allen, 1976; Ashton-Warner, 1963; Peterson, 1981; Veatch et al., 1973) advocate an abundance of books written by children about their own lives. Both Whole Language and Language Experience paint images of rich classroom environments; both emphasize the importance of literature. Both treat reading as a personal act, arguing for the need to accept and work with whatever language varieties a child brings to school. Visitors to Whole Language classrooms indeed see children writing books, working with literature, using a variety of symbol systems. Moreover, with the recent popularity of the term Whole Language, many teachers using dictation during their reading instruction time now call this Whole Language, thereby confusing framework (Language Experience Approach; Whole Language) with method (taking dictation). Thus, there are similarities in statements, in practice, and a frequent mislabeling of practice that would give people good reason for thinking Whole Language is a synonym for Language Experience Approach.

But it isn't

One primary difference concerns premises about the relation of oral and written language. Language experience presumes that written language is a secondary system derived from oral language. Whole Language sees oral and written language systems as structurally related without one being an alternate symbolic rendition of the other. Moreover, written language learning need not wait for oral language acquisition. According to Whole Language research, people can learn vocabulary, syntax, and stylistic conventions directly through written language (Edelsky, 1986; Harste, Woodward, and Burke, 1984; Hudelson, 1984).

Dictation provides another symptomatic difference. Language Experience teachers plan frequently for taking dictation from students. Whole Language teachers may take dictation but less frequently and usually only when prompted by the child's request. The underlying reasons for this disparity are critical, revealing an example of evolution in, not merely competition between theories. At the time Language Experience Approach (as a theory) was being developed, the implicit notion about the writing act was that it amounted to taking dictation from oneself, that composing occurred prior to transcribing. By the time Whole Language *theory* was being developed, the conception of writing had evolved to viewing meaning-making as occurring *during* the act of writing (Smith, 1982). Taking dictation deprives language learners of a key context for making meaning—the act of writing. It also deprives them of the opportunity to make a full range of hypotheses.

While Language Experience Approach statements and recommended practices do not state that reading consists of separate skills, they do assume that reading entails knowledge *about* reading and that this set of "subknowledges" is derived from skills lessons and practice (Allen, 1976). Additionally, Language Experience statements (Allen, 1976; Peterson, 1981; Veatch et al., 1973) include recommendations for using programmed materials and teaching about parts of language. Thus, after a child's experience is put to use in dictation, the transcription is often used to teach word attack or phonics skills.

In contrast, Whole Language acknowledges that metalinguistic knowledge is part of written language competence. Progress in theory development and research now allows Whole Language to dispute that such knowledge is best gained through fragmented exercises.

One unfortunate similarity is poor translation. The literature on both Language Experience and Whole Language (let alone actual classroom events) sometimes offers an inadequate vision of how some abstraction might look in real life. For example, in Language Experience statements, important abstractions like *reflection* and *dialogue* are trivialized by being put to service in the teaching of punctuation.

The Whole Language literature has its own share of contradictions. Children are supposed to write for their own purposes; yet activities (that word is used advisedly) are suggested wherein children end someone else's story (see recent issues of *Livewire*). Whole Language considers literature a way of knowing and also a critical medium for participating "in the club" of readers and writers (Smith, 1984). Nevertheless, literature is sometimes presented as a "strategy" for teaching reading.

The main distinction, however, between Whole Language and Language Experience is that the latter appealed to no developed theory regarding the nature of language, language acquisition, or the reading process. It made some use of structural linguistics; its references to child language consisted primarily of naive views of vocabulary acquisition (appealing to studies of size and type of vocabulary and of frequently used lexicon).

We must emphasize here that in the 1950s through the 1970s, the Language Experience Approach was the most progressive comprehensive view (i.e., stated assumptions and suggested practice) of written language teaching and learning. As we point out its theoretical inadequacies, we have to remind ourselves that it was developed in the late 1950s, before the advent of Goodman's (1969) revolutionary research on the reading process. That Allen and others did not account for literacy events, speech events, speech acts, or a sociopsycholinguistic model of the reading process reflects historical limits on knowledge rather than individual failure of vision. Even though Language Experience was not ac-

companied by a paradigm shift regarding written language (the required information was not available), it may have been a necessary precursor to Whole Language.

- *Is Whole Language a new term for the Open Classroom?*

It could be . . .

Whole Language and the Open Classroom of the 1960s and 1970s certainly bear a family resemblance. Recent comprehensive, respected statements on Open Education (Gross and Gross, 1969; Lucas, 1976; Neill, 1960; Nyquist and Hawes, 1972; Silberman, 1970) advocated something like the Language Experience Approach for literacy instruction. Dewey, more Whole Language-like than his followers, however, thought literacy should only be taught in connection with its use as a tool for something else (Lucas, 1976). Similarities between Language Experience and Whole Language have already been described in the preceding sections. But these are not the only likenesses.

Both Open Education and Whole Language note the active character of learning; both center on "the whole child." Both see learning as rooted in firsthand experience and genuine problem solving. Both concern themselves with more than language and literacy, more than thought or learning in the abstract but with thought-in-interaction, with learning-in-life. Significant content provides a curricular focus in Whole Language as well as Open Education. With so many resemblances, no wonder Whole Language is seen not as a cousin, but as an identical twin of Open Education.

But it isn't

We are deliberately avoiding, for these comparisons, using poor examples of Open Education practice. For example, in the name of Open Education, some classrooms were organized so children rotated, in rigid time blocks, among so-called Learning Centers at which they worked on Ditto sheets (round tables must have seemed more "open" than rectangular desks). Instead, we want to compare only the prototypical statements and practice in Open Education with the prototypical statements and practice in Whole Language.

An appearance of similar behavior may mask underlying differences. For instance, as we said, Whole Language emphasizes content; so did Open Education of the 1960s. However, the supremacy of "process" over content (perhaps as a vulgarization of the Open Education idea that there is no body of knowledge essential to everyone) became so strong in Open Education that curriculum content could be anything at all, with little attention paid to its disciplinary or social significance. While for

Whole Language, the "process" (generating questions, handling data, abstracting, categorizing, etc.) is critical, it does not overshadow content.

The role of the teacher is also similar but different. Bussis and Chittendon (1972) describe a highly active Open Classroom teacher rather than a passive reactor. Many Open Education statements paint the teacher as an ingenious, spontaneous facilitator, provisioner of the environment, and resource person. So do Whole Language statements (e.g., Edelsky, Draper, and Smith, 1983; Newman, 1985).

The distinction here is one of degree. Whole Language statements and workshops offer less on provisioning the environment, highlighting instead how teachers can intervene and fine tune interaction, keeping it theoretically "honest" and congruent with beliefs about language acquisition. In particular areas Whole Language teachers are more likely to actively participate as colearners, to construct meaning together with students rather than simply facilitate. Whole Language teachers also often act like coaches, demonstrating, explaining, and cheering so children can more effectively develop their own writing, drama, or science projects.

Classroom organization differs. Open Classrooms are frequently organized around some secondary structure—Learning Centers or committees, for example, where the grouping structure determines the schedule. Scheduling in Whole Language classrooms is more closely tied to the task (e.g., writing workshops, science project work).

The view of the learner varies. Despite the stress placed by Dewey (and Neill, 1960) on communities, the emphasis in Open Education was the learner as an individual, individually choosing topics of study, or, more likely, selecting from among the options the teacher offered at Learning Centers. Whole Language views the learner as profoundly social. Thus practice congruent with Whole Language includes participating in a community of readers during small group literature study, peer writing workshops, group social studies projects with built-in plans for collaborative learning.

Both Open Classroom and Whole Language educators oppose standardized testing. The difference in bases for their opposition is instructive. Open Classroom proponents claim that standardized tests fail to test what teachers are teaching (e.g., self-directedness, problem solving). The tests, in other words, are *insufficient*.

Whole Language educators, on the other hand, argue that the tests fail to test what the tests themselves claim to be testing (i.e., reading). That is, they are *invalid*.

This is a significant difference. It permits highly sophisticated Open Classroom educators (see Meier, 1981) to acknowledge invalidity but to concentrate their criticism on class and ethnic bias. In contrast, while Whole Language educators acknowledge such biases, they concentrate on

a different fundamental problem with reading tests: i.e., the tests can *never* test reading even if class bias could be eliminated (Altwerger and Resta, 1986; Edelsky and Draper, in press).

This discrepancy in rationale for opposing standardized reading tests stems from a distinction in origins of Open Education and Whole Language. Whole Language takes its direction from a particular view of language acquisition and of the reading process. Embedded in that view is a concern with a theoretical definition of the notion of authenticity as applied to reading and writing. It is that definition which allows Whole Language educators to argue that standardized tests are invalid.

This theoretical view of language undergirding Whole Language but absent from Open Education and its embedded Language Experience Approach to literacy instruction (because it was developed later) is the most important difference between these two innovations.

The last distinction we will mention concerns political vision and political context. Open Education's vision includes the belief that it is possible for truly democratic classroom communities to exist within non-democratic larger contexts. Moreover, experience in such classroom communities according to Open Education, should foster a lifelong demand for similar democratic contexts.

The rebirth after several decades of Open Education in the United States in the 1960s came at a time of both relative prosperity and widespread criticism of inequities endemic throughout society. Whole Language, on the other hand, is gaining momentum at a time when the homeless are increasing, when government social programs have suffered many cuts, when freedom to criticize is threatened by right wing groups such as Accuracy in Media and Accuracy in Academia.

The political vision woven through Whole Language beliefs grows out of this context. Its goal is empowerment of learners and teachers, in part through demystification (demystifying everything from what proficient readers actually do to how city water rates are actually determined). The Whole Language framework recognizes that large exploitive contexts have an impact on individual classrooms and relations within them; that increased democracy within individual classrooms must accompany work on understanding and changing larger contexts.

CONCLUSION

We have tried to show that Whole Language is not a phonics program or a whole word approach. Neither is it a revitalized Language Experience Approach or another round of Open Education. If its newness is not recognized, we fear it will suffer the fate of these two past innovations.

Language Experience was vulgarized to become a collection of flash cards hung on a shower hook. The idea of Open Education was distorted to mean an open pod. Lately we have seen Whole Language misrepresented by a whole word perspective (at a recent conference, there was a booth selling Whole Language pocket charts for sight words). It is already widely equated with a program of component parts explained in old terms that render it "nothing new."

But those who have had the courage to examine old beliefs, who have struggled, collaborated, sought and given support in working with the ideas of Whole Language know the excitement of discovering its newness for themselves. We invite all educators to join in this difficult, exhilarating, empowering work.

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2. LANGUAGE ARTS BASICS: ADVOCACY VS RESEARCH

by Peter Hasselriis and Dorothy J. Watson, University of Missouri, Columbia

Peter Hasselriis and Dorothy Watson refute the back-to-basics movement with six important theoretical principles for a language arts program: (a) linguistic order is constructed internally by the learner through social interactions; (b) students' prior knowledge before they listen, speak, read, and write determines the meaning they construct; (c) risk taking is essential in language learning; (d) learners develop as speakers, listeners, readers, and writers by engaging in those processes; (e) listening and reading are constructive processes as are speaking and writing; (f) engaging in language is "rewarding and motivating in itself"; and (g) language learning is rooted in the home. The authors also identify six practices based on these theoretical principles: (a) respect the strengths and knowledge of the learner in curriculum planning; (b) help students realize the value of errors because error making is necessary for the construction of knowledge; (c) make provisions for a large amount of time for students to discuss, read, and write; (d) use texts that have meaning for readers; (e) help students value their own progress rather than use behavioristic systems; and (f) inform parents of the theory of whole language and the activities congruent with the theory.

Readers who wish more information will find the following publication, edited by Dorothy Watson, helpful: Ideas and Insights: Language Arts in the Elementary School *(Urbana, Ill.: National Council of Teachers of English, 1987).*

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The back-to-basics thrust in teaching the language arts has been marked by a great deal of emotion and misinformation. On an emotional level it appears to be a reaction against what is viewed as a move toward permissive, open, child-centered schools and classrooms. Intellectually, it appears to be characterized by a view that there are serious problems with what young people are being taught and that those problems can be solved by implementing teaching materials and methods that were held to have been taught in past years and that are no longer

being taught. These "basics," moreover, are held to be necessary for gaining control over broader goals. (The ability to spell words correctly is held to be basic to writing, knowledge of phonics generalizations is seen as basic to reading, and miscue-free oral reading is viewed as basic to other reading proficiencies.)

We propose to describe the basics as they are perceived by those who are suggesting that schools go back to them. We will then describe the basics as we perceive them and supply a base of research and theory that describe and categorize those elements of language which appear to be truly fundamental, supplying at the same time, examples of teaching practices that are supported by the research.

LANGUAGE ARTS BASICS: ADVOCACY

Back to the basics advocates appear to view reading as a product consisting of discrete skills which must be mastered in sequence. They call for elementary school teachers to stress instruction in phonics and in other aspects of reading that tend to be fragments of the total act rather than integrated activities having comprehension as their principal focus. In a "basic" reading program there is a great deal of teacher direction and materials that incorporate repetitive drill. Much time is spent on teaching "skills," which, when mastered, will enable students to read at a designated "grade level."

Basic programs in the other language arts appear to have a similar focus. Students diagram sentences, choose correct words to be placed in blanks, underline parts of speech, and work on other such skills that will enable them to write when they are mastered.

Oral language is handled similarly. Back-to-the-basics advocates view regional dialects as "incorrect" language that needs to be corrected. Students are therefore asked to complete exercises in which they must choose the correct word for a sentence. Most of us have worked through a lifetime's supply of such sit-set, lie-lay kinds of exercises.

Back-to-the-basics programs, reflecting what many strident voices in society are demanding, place a great deal of emphasis on penmanship and spelling, again emphasizing skills which must be mastered in order to assure proficiency at higher levels.

Language arts teachers are under pressure to teach grammar and the classics. Grammar instruction is considered to be traditional grammar in which the emphasis is on identifying parts of speech. Such study is expected to help students become proficient readers and writers. Students' required reading is strictly prescribed and generally consists of works that are neither contemporary nor controversial. *Ivanhoe*, *Silas Marner*, *Julius Caesar*, and *Macbeth* are examples that come to mind.

LANGUAGE ARTS BASICS: RESEARCH

From our perspective the back to the basics movement is more of a nonmovement than a movement—a nonmovement in which we find instructional fragmentation of a static bloat of unnecessary information. In order to change a nonfunctional nonmovement into a vigorous course of action, we need, first of all, to identify the real basics as the students themselves and their language. With this clarification we can immediately reject skills, drills, mastery programs, and the technology of the uninformed curriculum makers, for they have nothing to do with students and their language. Fortunately, when we abandon the "back-to-the-basics" curriculum we are not cut adrift, floundering about for wise information on which to build our program and to invite our students. Rather, when we discard the technocrats' baggage we find energy and spirit to investigate the information provided by language theorists and researchers.

We have chosen the following researchers/theorists/educators to help us describe an active, real basics program for at least three reasons. First, they are known and respected for their professionalism and clear studies; second, their views are consistent and compatible; and third, they probably would not take offense to being dubbed kid watchers (Goodman, 1978) and listeners rather than subject(s) experimenters.

From Vygotsky (1962, 1978), Halliday (1978), Smith (1977), Britton (1970), Y. Goodman (1978, 1979), and K. Goodman (1979) we hear again and again that our attention must indeed be directed to students and to their language. These theorists tell us that we must look at students in their entirety: their motivations, interests, stories, songs, games, jokes, and jargon. We must explore the potential meaning symbolized in the string after string of words that are heard, spoken, written, and read in diverse settings, societies, and cultures. That is, we must investigate how language users make meaning and under what circumstances they make it.

Following are seven if-then statements that direct us toward some basic instructional procedures. These procedures are followed by further arguments and suggestions for activities that are consistent with the theoretical principle presented.

If-Then Statement I

If we know from theorists that linguistic order is created internally, cannot be imposed upon the learner, and is constructed by the learner through social interactions in which the user's *intent* is clear—then it is basic that we

1. reject unnatural activities, assignments, and materials that impose

the bloat of unnecessary information on the learner and that have no hint of meaning off the page, out of the kit, nor outside the classroom in which they are found;

2. replace contrived isolated and impersonal drill with expanded, personal and social activities in which students can hear and read the situation as well as hear and read the speaker and author—in order to construe meaning.

Discussion. Advocates of skills-oriented basal readers, phonics workbooks, spelling lists, programmed instruction, and the like seem to share a view that teaching involves showing students examples of the "right" way to use language. Unfortunately, such views not only place meaning and the unique differences among students as users of language in the background, but they also pay no regard to the pragmatics; that is, the context of the situation in which language is used.

Because language functions in situational contexts which dictate form, activities such as language experience stories, spontaneous conversations (including written conversations), role playing, scripted and extemporaneous drama allow learners to get a feel for the intent. That is, they understand why language is being used in the particular way it is being used.

If-Then Statement II

If we know from theorists (Y. Goodman, 1979; K. Goodman, 1979; Smith, 1977; Britton, 1970) that we often underestimate and underrepresent students' knowledge and their ability to use language, and that what learners experience and know *before* they listen, speak, read and write powerfully affects their ability to construct meaning—then it is basic that we

1. reject a deficit view of the student's language in which attention is on the half-empty rather than the half-full container;

2. come to know and respect the learner's store of knowledge and use this information as a guide in planning curriculum;

3. use our energies and knowledge in planning a learning-by-doing curriculum in which students become comfortable with new ideas, concepts, and unfamiliar labels before they are asked to read and write about them.

Discussion. Often a deficit view of students comes about from educators looking at standardized test scores rather than looking at students. In a study conducted by Allen (1978) we learn that only 42 of the 255 items on a popular reading test are designed specifically to find out how well the pupil can comprehend text. Scores on the subtests were, for the most part, not indicative of the actual reading proficiency of students. Such tests are widely used and often direct the curriculum. For exam-

ple, students who score below 80 percent on the Sound Discrimination subtest are to have remediation in sound recognition, even though we know that children and adults constantly demonstrate an ability to read despite low scores on the Sound Discrimination subtest. Assessments of this sort rarely give information upon which teachers can build curriculum. Activities that allow children to show, tell, and demonstrate their abilities are far more informative.

A student who thinks Loretta Lynn exemplifies the state of the art in vocal tone production will run from Luciano Pavarotti as if Pavarotti were rabid. There is an elitism in many schools that would place Loretta Lynn, Harlequin Romances, and many other forms of art that are highly regarded and sincerely respected by many persons at the negative end of a "cultural" continuum. Luciano Pavarotti and Shakespeare would probably be placed quite readily on the positive side. Constructing curricula and lessons exclusively around Pavarotti and Shakespeare would typify what many critics seem to expect schools to do, thereby leaving students with a heightened conviction that school is so far removed from their world—the real world, as they see it—that putting a great deal of physical or psychic energy into it is a waste of time. If the critics, schools, researchers, and students start communicating with one another we will begin to observe schools in which students are using language in ways that they perceive to be both valuable and enjoyable. We will, moreover, begin to observe astonishing amounts of improved writing, speaking, listening, and creative thinking.

If-Then Statement III

If we know from theorists that risk taking is a necessary part of all language learning—then it is basic that we

1. reject any program that is devoted to simplistic exactness, prescription, and mastery;
2. encourage informed risk taking by urging students to explore and ultimately control language by using it in large amounts at all appropriate times;
3. teach students that they can learn as much from getting it wrong as from getting it right.

Discussion. Goodman (1967) calls reading a psycholinguistic guessing game in which the reader interacts with the text, and, based on what the author has written and on the reader's prior knowledge, he takes a guess—a risk—and reads. [Editors' Note: For a visual presentation of a second grader's (Edie's) risk taking, see Figure 1, page 283, *Contemporary Educational Psychology*, July 1981.]

The point to be made here is that Edie's risk taking was encouraged;

the teacher did not stop her after each miscue to give her a basic skill strategy. Rather, Edie was allowed to construct meaning by interacting with the full text.

If-Then Statement IV

If we know from theorists that students learn to speak, listen, read, and write by engaging in a great deal of speaking, listening, reading and writing—then it is basic that we

1. carefully scrutinize our curriculum and exclude all dry and dispirited activities that take time away from practicing oral language and literacy;
2. provide as part of the curriculum (not as a reward, as "enrichment," or an elective) significant amounts of time to discuss, read, and write;
3. become kid watchers and listeners and as a result of watching and listening guide our students toward successful reception and production of language.

Discussion. Schools need to implement whole-school emphasis on language development and to explain to all teachers why this should be done. Every class should be organized in such a way that students spend the majority of their time engaged in conversations, panels, and discussions and in reading and writing whole stories, poems, books, and plays. Teachers should serve as models in such programs as Sustained Silent Reading (McCracken, 1971) and in all other "languaging" activities.

If-Then Statement V

If we know from language theorists that when students read and listen they are constructing (not reconstructing) meaning just as surely as they are constructing when they are speaking and writing—then it is basic that we

1. reject evaluative procedures that demand a template answer or cloned response that is an instant replay of the speaker's or author's message;
2. place students in situations in which they can construct meaning from meaningful discourse; construction from nonsense is nonsense;
3. enjoy diversity of interests, texts, language, and encourage students to acknowledge and use their background of experience to translate and understand everything they hear and read.

Discussion. Educators are encouraged to ask students to explore language within the discipline of general semantics. General semantics

stems from the work of Alfred Korzybski in the 1930s and has been popularized by such persons as S. I. Hayakawa, Stuart Chase, Wendell Johnson, and in more recent years, Neil Postman, and Charles Weingartner. Closely aligned with the thrusts of general semantics are the National Council of Teachers of English's concerns with "uses and misuses of language" as these are examined by its Committee on Public Doublespeak. *Language and Public Policy* and *Teaching About Doublespeak* are NCTE publications on this topic.

General semantics examines language within a context of social interaction and, thus, helps students become acquainted with the multitude of ways in which business, government, education, and others use language to persuade, manipulate, and otherwise influence people. General semanticists would argue that an evening spent studying how language is used in traffic court might be of much more value than spending the same amount of time doing workbook exercises on subject-verb agreement.

At any event, students need to use language in truly functional ways. If they are asked to write, it must be evident to them that what they are writing is valuable, either to themselves or for an important outside purpose. (A message needs to be sent, for example, a record kept, a thought captured before it's forgotten, or an order written and sent.)

If-Then Statement VI

If we know from language theorists that having control of language (being able to use it, play with it, learn through it) is amply rewarding and motivating in itself—then it is basic that we

1. exclude external rewards such as stars, coupons, M&M's, and extravagant praise from our language arts program;
2. help students enter into language using situations in which they can succeed and consequently be rewarded and motivated to use more and more language;
3. value and help students value their own as well as the work of other learners.

Discussion. Children begin to value language when they see that adults value language. Students need to experience a teacher who is experiencing language—that is, a teacher who is reading and writing right along with his/her students. When a principal comes into a classroom and reads during the silent reading period, the students know that reading is special—even the principal does it.

When students see their poems and stories in print (anything from a class paper to a polished school district publication), they know that their language has been taken seriously and is valued.

If-Then Statement VII

If we know from language theorists that home is where the language start is—then it is basic that we

1. know something of the language, experiences, and values of the family and community;
2. share with parents information gained from research on language development;
3. suggest whole-language activities such as silent reading time, singing, playing, talking, and writing together that will complement and support the school curriculum.

Discussion. Teachers who explain to parents the basis of invented spelling (Read, 1975; Chomsky, 1979), miscues in reading (Allen and Watson, 1976), the difference between real composing and superficial grammar drills, and the harm in attempting to eradicate dialect find the experience rewarding and in return for their efforts are supported by informed parents. The teacher who refused to identify her students by "a reading level" was told by her colleagues that the parents would demand to know their children's ranking. When the teacher outlined the problems, restrictions, and uselessness of such categorizing the parents expressed their relief; they were tired of big sisters reminding little brothers that they were "dismally below level."

CONCLUSION

Back-to-basics advocates lobby for schools that are product centered, with the products being mastery of skills, correct and neatly done drills and exercises, standard dialect, perfect penmanship, and other forms of conformity.

As we have shown, language researchers and theorists have given us a basis on which to lobby for schools that are student centered. Language activities in such schools will be characterized by respect for learners, their language, their motivations, and their strengths. Such language will be functional and valued at all times by students, parents, and teachers. Ironically, it will turn out to be language that is also more "correct," and, thus, more statisfying to those among us who appear to be certain that form is more "basic" than content.

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3. EXAMINING INSTRUCTIONAL ASSUMPTIONS: THE CHILD AS INFORMANT

by Jerome C. Harste and Carolyn L. Burke, Indiana University, Bloomington

Jerome Harste and Carolyn Burke provide insights about written language with a description of a first grader's literacy development as shaped by the influences of instruction. Alison already knew a great deal about written language before entering first grade, as indicated by examples of her reading and writing from ages three to six. Her teacher's practices, reflecting personal beliefs, do not acknowledge experience with language outside school or provide opportunities for the child to use what she knows. Thus, Allison is required to focus on letters of the alphabet, correct spelling, and standard handwriting. The authors show how the student's confidence as a writer is diminished by the teacher's instructional practice.

Whole-language teachers have an alternate set of beliefs supported by scientific theory of child development. Unfortunately, they are too often prevented from using practices congruent with their views of language learning because of state- and school-mandated curricula as well as other authoritatively imposed guidelines. The assumptions about learning written language held by Alison's teacher are held by far too many teachers of young students, administrators, and politicians. As Harste and Burke urge, teachers must be encouraged to increase their understanding and to examine their own beliefs about language learning in risk-free environments so that they and their students may benefit.

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A great deal can be learned about the validity of language activities in a classroom by looking at the assumptions that lie behind those activities. While the activities may appear on the surface to be varied and creative, a closer examination often reveals that they reflect unfounded assumptions about language growth and development, which may in fact debilitate rather than facilitate the process of language literacy.

A case in point is the first grade classroom of Alison, age six. As we will illustrate later in this [chapter], Alison had already had a variety of experiences with written language when she began first grade. While her

teacher was well intentioned, the reading and writing activities which she provided did not build upon Alison's range of experience. We would like to share with the reader some examples of these activities, as we think they are typical of the language activities found in first grades. They may even be better than those found in many classrooms, though we wish to argue that they are not good enough, because of the unfounded assumptions that lie behind them.

IDENTIFYING THE TEACHER'S ASSUMPTIONS

One of the first activities which Alison completed is that shown in Figure 1. When questioned at home about why she had elected to draw the bottom half of her body, Alison responded, "It's okay, teacher said so. Someone asked and teacher said we didn't have to draw our 'whole self' if we didn't want to."

On first blush, we might think, "A creative response to a good instructional activity." But is it? After all, this was an activity designed to help children learn to control the reading/writing process. Did it do for language what it did for art? In order to answer this question it becomes necessary to examine the activity more closely. We need to identify what teacher-held assumptions underlay the creation and selection of this activity.

This is readily done by identifying the set of written language principles relative to learning which undergird this activity as opposed to other activities which might have been selected. We can easily think of both more open and more closed activities which were available options to the teacher. For example, the teacher did not elect to give the children a sheet of paper, ask them to draw a picture of themselves and then write or pretend to write an autobiographical story to share (a more open activity), nor did the teacher focus the children's attention upon an isolated letter or letter-sound correspondence pattern (a more closed activity). An analysis, then, of this activity and of the teacher's responses to it, suggests the following assumptions relative to written language learning:

Assumption 1: One of the first tasks in learning to read and write is to be able to discriminate visually the letters of the alphabet.

This is best taught by activities such as underwriting which force the child to attend to the distinctive features of each letter.

Assumption 2: Language activities designed for children should be manageable to insure completion and hence success.

One way to accomplish this is to use simple whole texts which contain a limited number of basic vocabulary items (Here I am. My name is . . .).

Assumption 3: Errors should be marked to give corrective feedback

and to stop bad habits from forming. (See the teacher's correction of *s* in Figure 1).

Assumption 4: Initial language activities should be personally meaningful to the child.

This is best done by focusing on topics of interest to the child. (In this activity, the topic self).

Assumption 5: Children do not need as much support in art as they do in writing.

The incorporation of art allows for self-expression and creativity.

The question now becomes, "In order to make these assumptions, what does one have to believe?"

The more obvious belief underlying Assumption 1 is that children need to be able to note differences between the various letters of the alphabet in order to learn to read and write. Less obvious perhaps is the implicit belief that first graders do not already possess this ability to discriminate the letters of the alphabet, i.e., that visual discrimination of letters must be formally taught. Each of these beliefs merits investigation. The rampant popularity of a belief is never criterion for acceptability, but rather for testing.

A listing of further beliefs which we have identified as inherent in this single instructional activity is given below.

- Access to the reading/writing process hinges on mastery of the distinctive features of print (see Assumption 1).
- The word is the key unit in language (See Assumption 2).
- Words selected for initial instruction must be chosen on the basis of frequency of usage (see Assumption 2).
- Errors must be pointed out by a guiding adult as children do not have information which they can use for self-correction (see Assumption 3).
- The goal of early language learning is an error-free performance on basics as without this children will never be able to access the process (see Assumption 3).
- Activities which make personal sense support the child's access to basic literary processes (see Assumption 4).
- This means, in as far as language learning is concerned, that topics should be chosen carefully so that children find them personally meaningful but the actual language introduced must be carefully selected and controlled by the teacher (see Assumptions 2 and 4).
- Art is an easy activity for the child (natural); reading and writing are hard activities (unnatural) (see Assumption 5).
- Art is learned; reading and writing must be taught (see Assumption 5).

• Creativity must wait upon control. Because children have already learned the basic forms of art, i.e., they have control of the basic conventions, creativity can be expected. Once children control the conventions of written language, they can and will become creative written language users as well (see Assumption 5).

One might argue that this analysis is a highly speculative process, and infers much from a single instructional activity. To illustrate the reoccurrence of the identified language learning principles in subsequent activities, three additional activities completed during the first week of school are described.

The activity illustrated in Figure 2 is closely tied to that discussed in Figure 1. In this instance, children were given ditto master copies of story parts of which the page shown is one. The children were asked to arrange the pages in order, paste them to the blank pages of a stapled book, draw a picture to fit the text, and overwrite the script on each page. Though this assignment involves more procedures, what has been said relative to beliefs inherent in the first activity, holds for this activity too. The significant creative decisions related to the written language—the writing of the story—have been made by the teacher. The student is left to simply recreate the decreed text order and to copy the print. Only the art is left open to creative efforts of the student.

The activity which generated the product illustrated in Figure 3 initially appears somewhat different, but closer examination indicates that it too shares the beliefs reflected in the first two assignments. This assignment is a parent-teacher notice which the children were asked to copy from the blackboard and take home as a reminder of an upcoming meeting. In this instance, the teacher gave each child a sheet of lined paper with his/her name on it. Children were asked to underwrite their name twice, and then copy the message that had been written on the blackboard.

An analysis of the beliefs which guided this activity suggests that all of the original beliefs hold, and that a further clarification has been obtained. Presumably the teacher is concerned with how Alison spatially controls the writing of her name and feels that practice is needed. Often this concern for the child's inability to stay within the lines is predicated on the belief that handwriting signals muscle and eye coordination and that such coordination is prerequisite to learning to read and write.

Figure 4 illustrates this teacher's application of the language experience approach to teaching reading. Rather than transcribe what the children actually said, Alison's teacher transformed each new suggestion into a common pattern for the purpose of teaching the word *we* and controlling the complexity of the syntactic patterns used. After the teacher had

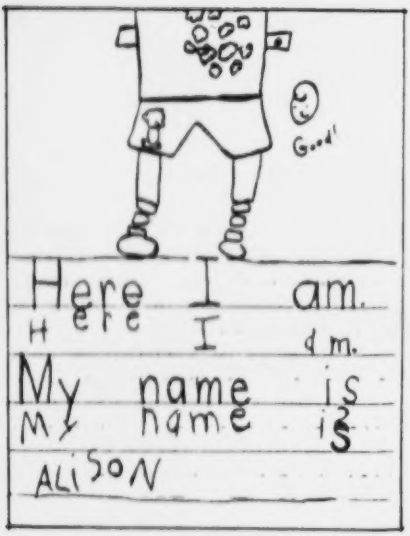

Figure 1. Underwriting (Alison, Age 6.4)

Figure 2. Overwriting (Alison, Age 6.4)

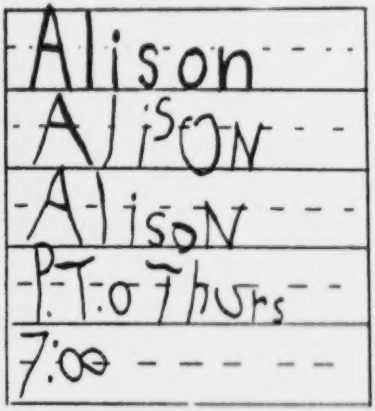

Figure 3. Copying (Alison, Age 6.4)

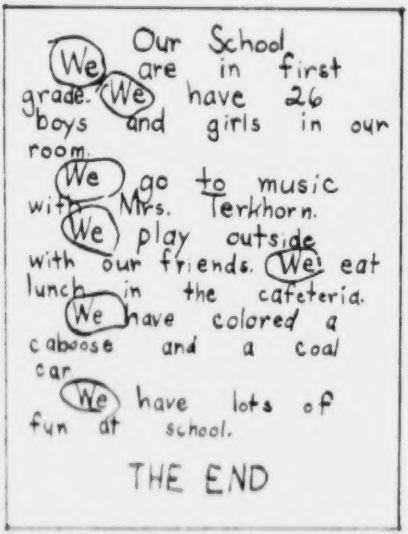
Our School
We are in first grade. We have 26 boys and girls in our room.
We go to music with Mrs. Terkhorn.
We play outside with our friends. We eat lunch in the cafeteria.
We have colored a caboose and a coal car.
We have lots of fun at school.
THE END

Figure 4. Class-Contributed "Language Experience Story" (Alison, Age 6.4)

BEST COPY AVAILABLE

composed this text, each child was given a ditto copy of their class-contributed "language experience story" and asked to circle the word *we* each time it appeared. While the instructional activity has changed, the underlying assumptions governing the activity remain intact from the first three lessons.

An analysis such as we have been doing is intended to indicate that what Alison's teacher believes about the reading and writing process strongly affects both her choice of instructional activities and her handling of such activities. Her behavior is orderly, consistent and predictable. This is so in spite of the fact that she maintains she is eclectic and applies "a variety of approaches to the teaching of reading." Despite supposed surface structure variety in activities, her invariant assumptions continue to show.

From data such as this, we have come to believe that looking at teacher behavior in terms of the beliefs held and assumptions made is a more cogent and powerful one than looking at behavior in terms of the supposed approach being used (Harste and Burke, 1977). This teacher presumably changes approaches, but because she has not changed beliefs, her classroom practice is unaffected (as is, in all likelihood, the outcome of her instruction, but that's another equally important and complex issue which we will not develop in this [chapter].)

These data support the position that the teaching of reading and writing is theoretically based—that each of us as teachers has a theory of how to teach reading and writing in our heads which strongly affects our perception and behavior. We define theory simply as a set of interrelated beliefs and assumptions through which perception and behavior are organized. What this means practically is that in order to change behavior we must change beliefs. To that end we now turn to an examination of language encounters which Alison has had prior to and outside her school related experiences.

IDENTIFYING THE LANGUAGE LEARNER'S ASSUMPTIONS

Reading. Alison, we wish to argue, has been a user of written language for a long time now. One of the earliest instances of Alison's use of written language occurred when she was three years old. At the time, Alison and her family were on the way to the zoo. As they approached the beltway which would take them to the zoo, Alison's father, pointing to an overhead sign signaling "West 465," asked, "Alison, what do you think that says?"

Alison responded, "It says . . . uh . . . 'Daddy, turn right here to go to the zoo.'"

While some might argue this isn't reading, we wish to disagree. Ali-

son has made a decision which puts her in the semantic ball park. She assumes that the print out there relates to the activity in which she and her family is engaged. And she's right in all but the pickiest sense. Alison's response demonstrates her expectation that written language will be meaningful. We do not know how or when children come to this important conclusion. All we know is that children as young as three have already made it, and that somehow readers who end up in remedial classes have lost or lost faith in it.

We believe it is through the expectation that written language will make sense that control is gained. Once the sense-making intent of written language has been perceived, ideation and hypothesis-making become the process forces of control. To further illustrate this point we can share another one of Alison's early encounters with print. This encounter occurred on a "dessert trip" to Baskin-Robbins. She was four years old at the time.

After eating her ice cream cone, Alison looked around the room attempting to find a trash can in which to deposit her napkin. After exploring logical locations, she found it, studied the wooden flap engraved with the word *push*, performed the required action, and deposited her napkin. Alison's mother, who had been observing her problem-solving behaviors, now asked, "Alison, what does that say on the trash can?"

"Push," came the response.

"How do you know?" was her mother's next question, to which Alison took her index finger and ran it over the *p*, the *u*, the *s*, and the *h* in turn, and responded, "Because it's got all the right letters!"

It was from knowing what written language does that Alison had grown in her control of the form. From earlier cognitive decisions such as that illustrated in the trip to the zoo, which put her in the semantic ball park, she could and did test language hypotheses which put her—to carry the metaphor another step—not only on base, but gave her the metalinguistic control to speak about the game itself.

The importance of this process of on-going hypothesis testing is best illustrated by yet another language story. Alison was four years, one month at the time. In this instance she was shown a Wendy's cup and asked, "What do you think this says?"

Alison responded, running her finger under the word *Wendy's*, "Wendy's" and running her finger under the word *hamburgers*, "cup." Alison paused a moment after producing her response, as if in reflection, and added, "That's a long word with a short sound!"

In this instance, the hypothesis which Alison has formulated relative to graphic-sound correspondence is an incorrect one. Yet, her very mention of it signals us to the fact that she has also formulated the correct al-

ternative and was attempting to orchestrate this decision with the sense-making intent she knew existed. Need we help her? Not in a traditional corrective sense. All we need is to ensure that she have continuing encounters with the process, for each encounter will allow her to test out the validity of her current hypotheses and to reconstruct a new set at a level far above our assumptive imaginations.

Alison was reading before she went to first grade. Her teacher, through the use of standardized tests, has placed her at the preprimer level. At home she reads such texts as *It's The Easter Beagle, Charlie Brown* (Schulz, 1976). She's likely not to encounter equivalent print settings in school until fourth grade.

Why the discrepancy? It's those assumptions again. The tests Alison has taken in school strip language of its context, forcing her to deal with letters and words not only outside a supportive linguistic environment, but also outside a supportive context of situation. Without the latter Alison has neither a point of anticipation, nor a point of contextualization.

Written language learning is a social event of some complexity and written language use reflects the orchestration of this complex social event. Both the complexity and the orchestration support the development of user control. Knowing Alison as the reader she is would leave her production of a backward *s* in writing (as illustrated in Figure 1) a puzzlement unless one gives up the assumption that control of form is prerequisite to the language process. It is because Alison is, and has been, a reader and writer that she has a growing control of its form, not vice versa.

Writing. Alison is, and has been as impressive a writer as she is a reader. Her explorations of written language began long before what was produced became representational in any adult sense. What Alison reaffirmed in her movement into writing is that children must encounter the language process in its complexity in order to learn control. As with reading, it was Alison's early access to what written language does that allowed her control.

At four years, three months, Alison encountered a wordless book and made up an appropriate story. The next evening in wanting to reread the book she asked, "What was that story I read last night?"

"Well, I'm sure I don't know. If you want to remember your stories, you need to write them down. Then you can reread them whenever you want to."

Alison's story in Figure 5 about Daddy coming home and taking the family to McDonald's was placeheld using the letters of her name simply reshuffled in order. For months, whenever she encountered this book, she would get her paper out and faithfully read this text with minor variation:

One day Daddy came home and he said, "'Hi family, I'm home," and he's gonna take us to McDonald's. I'm gonna have a fun meal.

This sample illustrates Alison's public announcement of her discovery of the finite symbol system in written language; namely, one continuously re-orchestrates the same set of letters to produce an infinite set of words. Alison, as was always the case, demonstrated this growth using print of high personal worth—in this instance, her name. As in reading, adult recognition of the process often seems to hinge on how representational or conventional the product is. This is unfortunate, for it leads to the dismissal of early efforts as not worthy of attention.

Alison is, clearly, a writer in this instance, orchestrating aspects of this particular social event much as would any writer. She has grasped much: the meaning relationship between picture, text and her world; directionality (both top-down and left-to-right); the function of print in this setting; the organizational scaffolding of a story; the use of structure components to placehold meaning. Each of these decisions are signals of developing written language literacy. The fact that her writing is not yet representational (the symbols she uses to placehold McDonald's or Daddy do not look identifiable as such to our literate eye) is not nearly as significant as are these other factors.

Alison's orchestration of these multiple decisions is clear evidence of her sophistication. In light of all that she has managed to do, why should the questions most frequently generated about her accomplishments be, "Did she spell correctly?" and "Did she make her letters right?"

At four years, eight months, Alison placeheld all written messages using a cursive script such as that illustrated in Figure 6. While a first look at Alison's product at this juncture might indicate that she knew little about writing, such a conclusion would turn out to be assumptive and false. What this product represents is simply Alison's testing of alternate available hypotheses. Although we cannot know for sure what is being tested, we can feel fairly comfortable in light of her earlier behavior in saying that she has tentatively set aside some of what she already knows (her knowledge of letterness and the finite symbol system of English) to test other aspects of the process. Alison has not had a setback. Current models suggest linear growth with more and more aspects brought under control in an incremental fashion. Data such as this clearly challenge such extant notions of development.

If one views each instance of written language use as the orchestration of a complex social event, then what the initiate written language user is faced with is a problem of some magnitude. As varied elements in this event are perceived, new hypotheses are generated and tested. The hypotheses are concerned with pragmatics (what are the rules of language

use relative to a particular context), semantics (how can I say what I mean), syntax (how do I get the flow of my message captured on paper), graphics (how do I represent what I wish to say), and the orchestration of these systems (how do I draw on all these systems simultaneously). Within each of these areas there are, of course, a range of hypotheses which need formulation and fit. Additional hypotheses arise as more and more elements are orchestrated. What looks like regression, given the assumptions underlying one theory, signals growth from another theoretical perspective.

Growth, while constant, looks sporadic because of the primitives which undergird our assumptive yardsticks. Current yardsticks divert attention away from growth toward "developmental stages" which attempt to calculate growth by marking surface level features of conventional form. Such a focus draws our attention away from the universals of written language literacy which operate across language users at all ages and express themselves in a variety of forms. Our thinking becomes limited to a step-wise regression to perfection.

As an instance, let's take spelling, often measured as a simple yes-no decision. Alison has used the conventional spelling of her name since she was three years old, as is illustrated in Figure 7. Yet her most interesting signature is not her first or last, but one she experimented with during a two week period shortly after she turned five years of age. At this point, Alison wrote her name adding a *u* in the middle. When asked why she added the *u*, she replied, "Because I wanted to." After several weeks of experimenting with this signature, she abandoned it in favor of the spelling her parents had elected at birth.

Isn't it fascinating? Everything Alison had discovered about print compelled her to say that there ought to be a *u* in her name. And there well could be. It was one of the options her parents could have taken when they selected the original spelling of her name.

Alison feels comfortable with what she's discovered about how print operates. Like all of us, she's satisfied and interested in her latest discovery and tries it on for fit. Similar trends will be seen in the writing of all of us—a favorite word, a favorite syntactic pattern, a favorite organizational style. The issue is not so much what is being tested or how much conventional congruency is achieved, but that the universality of growth, and fit, and continued growth is expressed.

At five and one-half Alison made a finger puppet out of paper and was asked to make a smiling face and to write about something that made her happy. She produced the product illustrated in Figure 8. Without apparent warning, Alison moved so naturally from the writing illustrated in Figure 6 to that represented in Figure 8 that her behavior quite shocks us. She has been writing in this latter fashion ever since.

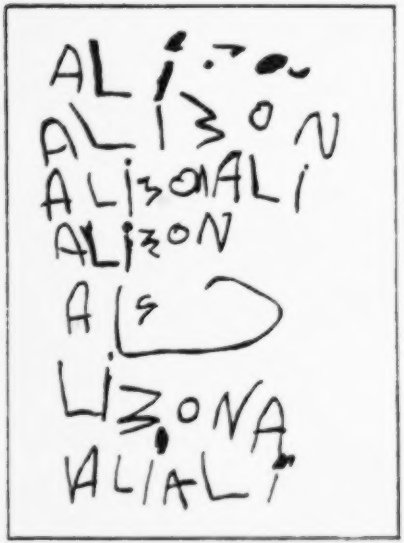

Figure 5. Story to Wordless Book
(Alison, Age 4.3)

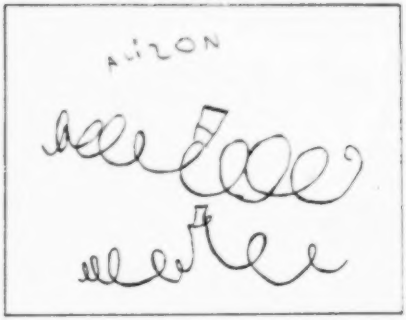

Figure 6. Cursive Story Script
(Alison, Age 4.8)

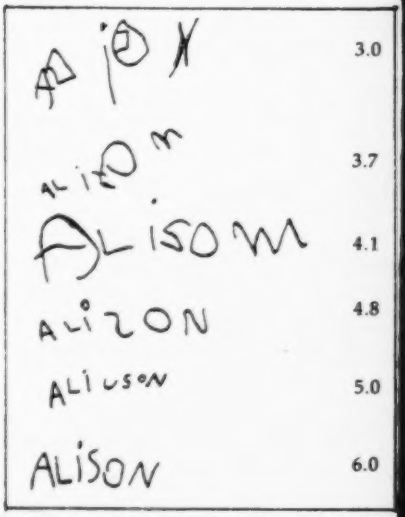

Figure 7. Signatures (Alison)

Alison's What Makes Me Happy ("Mn I C FLOMRS"—When I see flowers) is an impressive display of rule-governed and orchestrated behavior. The message is the product of an integrated processing of pragmatics (used appropriate language in this setting), semantics (said something which makes personal sense), syntax (managed to capture the flow of her thought on paper using the standard conventional form of wordness), and graphics (abstracted out salient letter-sound relationships which undergird written language and placeheld these relationships with letter forms). Given such a magnificent breakthrough, we find it quite frustrating that the only comment made by one professional with whom we shared this piece was that her "Ws were upside down"

On her sixth birthday, Alison wrote her grandmother a letter thanking her for the present which she had received (Figure 9). Once again her knowledge of written language is extensive, showing a complex mapping of letter-sound relationships, syntax, and meaning. When her writing in this instance is compared with that done on the puppet, it becomes clear Alison also has some awareness of the function of written language in alternate settings. That is, her letter sounds like a letter while the message on her puppet was a response to the implied lead, "What makes me happy . . ." Note also Alison's conventional spellings of *loved* and *your*, indicating that she is not only using a phonetic mapping in her spelling, but a visual memory of what these words look like. Alison orchestrates these elements so smoothly that they go easily undetected as the magnificent achievements which they are. The fact that such phenonema are sorted out so readily by children at such an early age leads us and others to conclude that "writing is natural" (Goodman and Goodman, 1976).

Alison's behavior here is a vivid display of the interrelatedness of reading and writing. It is through having encountered the words *loved* and *your* in reading that Alison fine-tunes her writing strategies. Alison simultaneously orchestrated spelling the way it sounds, spelling the way it looks, and spelling the way it means. All of the growth illustrated in the examples above occurred prior to Alison's entrance into first grade, yet the growth was untapped in the instructional activities which Alison's teacher provided for her.

On the occasion of Alison's return from school with the written product shown in Figure 10, she was given a piece of paper and asked to write, "Here is my house and family," the very script which she had underwritten on the school worksheet. Alison, we lamentingly report, burst into tears and said, "I can't write." After comforting she was told, "Sure you can, you've been writing a long time now."

"But I don't know how to spell and write good," came the still tearful reply.

"Oh, yes you do. You're only in first grade. If your writing looked like ours, there would be no reason for you to be there. You know we can read anything you write."

With this Alison produced the text illustrated in Figure 11.

You, we hope, will say with us, "How sad that Alison had to have this moment of doubt."

Her assumptions did not match the instructional assumptions being addressed and hence she decided she was wrong. In this instance instruction was a debilitating rather than a facilitating experience.

CONCLUSION

Data collected from Alison and some 67 other three, four, five, and six year olds (Harste, Burke, and Woodward, 1977; Woodward, in progress; Harste, Burke, and Woodward, in press) leads us to conclude that many of the instructional assumptions currently made are faulty at best and debilitating at worst. In no instance—and our data has been collected from high, middle, and low SES, black and white, boys and girls, small town and urban inner-city—would the assumptions underlying Alison's instruction have been appropriate ones from which to operate instructionally.

The error in the instruction provided by Alison's teacher was that the instructional assumptions were never tested through the provision of open-entry student activities which could provide alternate data and lead the teacher to challenge her own beliefs. All of the activities given to Alison by her teacher effectively forced Alison to operate within the teacher's assumptive bounds; never providing her the opportunity to demonstrate what decisions she as a language user was interested in and capable of making.

What we recommend instructionally for both teacher and pupil is open-entry language activities where constraints are allowed to evolve in a risk-free language environment, where each (both teacher and pupil) can go beyond their assumptions. In many ways the real issue which this [chapter] addresses is whose written language assumptions should be tested—the teacher's or the language user's.

It's not that assumptions are bad. It is in fact our professional right and responsibility to make and have them. But it's also our professional responsibility to self-examine them. It is only in knowing ourselves and what assumptions we hold that we can begin to challenge them and grow. What is true for the language learner is true for the language teacher.

Figure 8. Finger Puppet (Alison, Age 5.6)

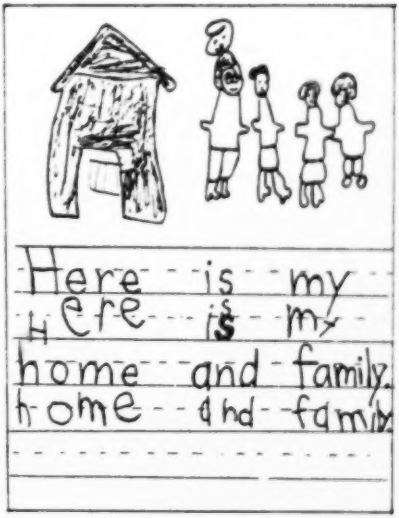

Figure 10. Underwriting
(Alison, Age 6.4)

Figure 9. Letter to Grandmother
(Alison, Age 6.0). "Dear Grandma,
I loved your present. Alison."

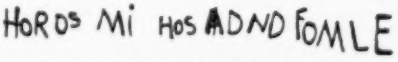

Figure 11. Uninterrupted Writing
(Alison, Age 6.4)

NOTES

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4. DEMONSTRATIONS, ENGAGEMENT AND SENSITIVITY: THE CHOICE BETWEEN PEOPLE AND PROGRAMS

by Frank Smith, University of Victoria, British Columbia

Frank Smith believes that teachers must show students that literacy is useful, enjoyable, and attainable. At the same time, he points out that in this century linguists, psychologists, computer specialists, and other external agents are increasingly influencing "what and how teachers should teach." He also notes that the influence of programmatic approaches to reading instruction is growing. Teachers are told to follow program guidelines; instructional decisions are made in advance by the program developers even though these "experts" have no personal knowledge of the student who is supposed to profit from the program. Smith thinks that the basal programs dominating today's schools fracture literacy experiences for students.

A dilemma that must be confronted, according to Smith, occurs when schools use highly structured programs and at the same time produce high standardized test scores. He provides two explanations for this phenomenon: (a) structured programs often teach the same isolated facts and skills that tests measure; therefore, the higher test scores do not represent higher reading ability, just higher test scores; and (b) effective teachers, who are required to use formal programs, also use meaningful reading activities such as an independent reading program with time for reading and time for talking about what they read. Students in the latter situation become better readers with the credit going to the programmatic approach being used rather than to the teachers' sensitive instruction.

Another reason for the high test scores, not mentioned by Smith, is the influence of socioeconomic status. There is a high correlation between social class and reading achievement scores. As a result, schools serving students from high socioeconomic backgrounds will have high test scores regardless of the program used. Consequently, attention must be diverted from the narrow focus on test scores as indicators of achievement. Other more significant factors need attention in order to help students of all backgrounds develop as readers who do, in fact, read.

Readers who wish to know more about Smith's views will enjoy his Understanding Reading, *2d edition (New York: Holt, Rinehart, and Winston, 1978), and* Insult to Intelligence *(Portsmouth, N.H.: Heinemann, 1986).*

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In an earlier article in this [issue of *Language Arts*] entitled "Demonstrations, Engagement and Sensitivity: A Revised Approach to Language Learning" (Smith [September] 1981), I discussed the proposition that children's brains learn constantly. Everything demonstrated by children by act or by artifact is likely to be learned by them. Educators should not ask why children often do not learn what we believe they are taught, but rather what they might be learning in its place. Teachers may not teach what they think they are teaching.

In [this chapter] I shall consider some implications of the view that children are always likely to learn what is demonstrated to them. In particular I shall argue that the critical question confronting teachers of language arts today is not how writing, reading, and other aspects of literacy should be taught, but what we want children to learn. This is not a question for research to resolve; the relevant evidence is available. Rather the question requires a decision, upon which the future of teachers and of literacy may depend.

The decision to be made is whether responsibility for teaching children to write and to read should rest with people or with programs, with teachers or with technology. This is not a matter of selecting among alternative methods of teaching children the same things. Different educational means achieve different ends (Olson and Bruner 1974). The issue concerns who is to be in control of classrooms, the people in the classroom (teachers and children) or the people elsewhere who develop programs. Different answers will have different consequences.

The argument will cover the following points: (1) that programs cannot teach children literacy (though they may be extremely efficient at teaching other things); (2) that programs and teachers are currently competing for control of classrooms; and (3) that teachers will lose this contest if it is fought in terms of those things that programs teach best. Of course, I must be more explicit about what I mean by "programs." But first I shall briefly restate some relevant points from the [earlier article].

THE EVER-LEARNING BRAIN

Analysis of the enormous complexity and essential arbitrariness of the conventions of language that all children master who succeed in using and understanding the familiar language used around them led to the proposition that children's brains strive to learn all the time. Children cannot tolerate situations in which it is not possible for learning to take place. Boredom or confusion are as aversive to brains whose natural and constant function is to learn as suffocation is to lungs deprived of the opportunity to breathe.

Learning occurs in the presence of *demonstrations*, and what is learned is whatever happens to be demonstrated at the time (or rather the learner's interpretation of the demonstration, the way the learner makes sense of it). Learning never takes place in the absence of demonstrations, and what is demonstrated is always likely to be learned. Demonstrations are continually and inevitably provided by people and by products, by acts and by artifacts. A teacher bored with what is being taught demonstrates that what is taught is boring. A reading or writing workbook containing nonsensical exercises demonstrates that reading and writing can be nonsensical. Demonstrations can also be self-generated; they can be constructed by imagination and reflection in the privacy of the mind.

Learning is an interaction, a concurrent event rather than a consequence of a demonstration. Learning is immediate and vicarious, the demonstration becoming in effect the learner's own learning trial. I termed this interaction *engagement* to indicate the intimate meshing of the learner's brain with the demonstration.

Engagement with a demonstration will occur if there is *sensitivity*, defined as the absence of expectation that learning will not take place. The expectation that learning something will be difficult, punishing, or unlikely is itself learned and can be devastating in its long-term consequences. Like all other learning, the expectation that learning will not occur is established by demonstrations.

To learn to read and to write, children require (1) demonstrations of how reading and writing can be used for evident meaningful purposes, (2) opportunities for engagement in such meaningful uses of reading and writing, and (3) freedom from the unnecessary undermining of sensitivity. Obviously teachers are able (or should be able) to provide such demonstrations and opportunities for engagement. The question is whether programs can also meet the three requirements.

THE NATURE OF PROGRAMS

Programs appear in a number of educational guises—as sets of materials, workbooks, activity kits, guidelines, manuals, record sheets, objectives, television series, and computer-based instructional sequences. The history of instructional programs is probably as long as that of education itself, but they began proliferating during the present century as experts in other fields (such as linguistics, psychology, computer science, and test construction) and other external agents increasingly asserted views about what and how teachers should teach. The assumption that programs could achieve educational ends beyond the capacity of autonomous

teachers grew rapidly in North America with the educational panic that followed Sputnik in 1957 and the coincidental development of management systems and operational techniques for the solution of logistical problems. (A senior official of the International Reading Association once announced gratefully that the National Aeronautics and Space Administration would help to eliminate literacy by contributing the technology that had delivered men to the moon.) The pervasiveness of programmatic approaches to education is now expanding further and faster as the development of microcomputers makes a new technology available for the delivery of prepackaged instruction.

Despite their manifold variety in education, programs have a number of common elements, the most critical being that they transfer instructional decision-making from the teacher (and children) in the classroom to procedures laid down by people removed from the teaching situation by time and distance.

Children and teachers can be programmed in the same way that computers are programmed, with all goals and activities specified in advance and procedures provided for every decision to be made. Unprogrammed decisions made by computers are regarded as random behavior likely to divert or derail the entire program, and the same attitude is taken in the programming of teachers and children. At least one commercial reading program specifically admonishes teachers not to answer questions asked by children which the program has not anticipated. Some programs are explicitly "teacher proof"; others merely warn teachers not to improvise or to tamper with their procedures. No program, however "individualized," asserts: "This program should only be used by a sensitive and intelligent teacher capable of exercising independent judgment about whether it makes sense to use this program with a particular child on a particular occasion." Instead there is an assumption that the program will be more sensitive and intelligent than the teacher, that instructional decisions will be better made in advance by individuals who do not know and cannot see the child who is supposed to be learning from the program (and who in turn cannot see, know, or question them).

Educational programs share a number of other characteristics, all deriving from the fact that they strive to make decisions in advance on behalf of teachers and children. All of these common characteristics constitute constraints or limitations on what the program can achieve, yet paradoxically they are frequently claimed to be virtues of the program. For example, it is a critical limitation of programs that they cannot demonstrate what reading and writing are for. Teachers can demonstrate the utility of literacy by ensuring that children observe and participate in written language activities that have a purpose—stories to be written and read for pleasure, poems to be recited, songs to be sung, plays to be act-

ed, letters to be sent and received, catalogs to be consulted, newspapers and announcements to be circulated, advertisements to be published, signs to be posted, schedules to be followed, even cribs to be concealed, all the multiplicity of ways in which written language is used (and taken for granted) in the world at large. None of these purposes can be demonstrated by programs, which can only demonstrate their own instructional intentions. Reading and writing are *human* activities, and children learn in the course of engaging in them. Programs must assume that children will learn to read and write before actually engaging in these activities, which means that programs demand learning for which no utility is evident.

The virtue claimed for programs in face of the fact that their instruction is decontextualized and bereft of evident purpose is that they are "skill-based," that they teach basic or sub-skills with an implied promise that isolated fragments of skill and knowledge will one day fall into place and the learner will suddenly become able to participate in the new and hitherto unexplored activities of reading and writing. Because programs are more concerned with exercises than purposes, their activities bear little resemblance to any normal, motivated, selective act of reading or writing. Therefore program developers tend to depend on theories that reading and writing are inherently unnatural and difficult (e.g., Mattingly 1972; Liberman and Shankweiler 1979), to be learned by rote rather than by the meaningfulness which is the basis of spoken language learning (Smith 1977).

All programs fractionate learning experience. Because learners cannot be left free to wander at will through (and out of) the program—which would then not be a program—tasks have to be broken down into small steps without evident relationships to each other or to reading and writing as a whole. Because learners can have no intrinsic motivation to perform such tasks—there is no evident reason for doing one thing rather than another—the order in which tasks must be approached and mastered is narrowly prescribed. This is totally unlike the way in which infants are immersed in the environments of meaningful spoken language, to be progressively understood in the manner which makes most sense to each individual child. The virtue claimed for the highly artificial and arbitrary sequencing of programmatic learning is that it is systematic and scientific, although it could equally well be characterized as a systematic deprivation of experience. The responsibility assumed by prescribing the exact nature and order of experience that each individual child requires in order to reach an understanding of reading and writing is awesome, analogous to restricting a child's exploration of the visual world to glimpses of predetermined events paraded past a slit in an enveloping curtain.

Also because of the purposeless and decontextualized nature of programmatic instruction, the program itself must decide whether the learner is right or wrong. When language is employed for meaningful uses, the context provides clues which not only indicate what the language is probably about and how it works but also whether the learner is right or wrong (Smith 1975). There are only two kinds of mistakes in such meaningful language, those that make a difference and those that do not. A mistake that does not make a difference does not make a difference. A mistake that makes a difference becomes self-evident and is the basis of learning. But with meaningless programmatic instruction every deviation from the literal path is an "error" although the only difference it can possibly make is that it is not permitted by the program. Mistakes are to be avoided rather than accepted as opportunities for learning. Nevertheless, learners are constantly moved towards difficulty because tasks that they can accomplish without error are regarded as "learned" and no longer relevant. The virtue claimed for these constraints is that learning can be promoted, monitored, and evaluated every step along the way. There is "quality control" of both the learner and the teacher, no matter how insignificant the mistake or irrelevant the learning task.

As programs have become increasingly more systematic, greater restrictions have been placed on both the time and possibilities available to teachers to introduce activities of their own. Programs dominate classroom activities. The virtue claimed for this limitation is that programs become total "management systems" for delivering instruction to children. Instruction is seen as a manufacturing process, with the learner as raw material, the teacher a tool, the instruction as "treatment," and a literate child as the product delivered at the end. Few program developers are as frank as Atkinson (1974) who admitted that his own elaborate computer-based program began with phonic drills because these could be most easily programmed on the computer. The importance of comprehension in reading (but not in learning) was acknowledged by the characteristic programmatic strategy of treating comprehension as a set of skills to be acquired rather than a state which is the basis of all learning (Smith 1975).

Because programs are by their very nature piecemeal, unmotivated, standardized, decontextualized, trivial, and difficulty-oriented, it would often not be apparent what they were supposed to be teaching if they were not clearly identified. Teachers often say they are teaching reading or writing (or spelling or comprehension) because this is the label attached to the program that happens to be in use. And programs are typically not modest in their claims, particularly those that insist upon being the most rigorous. A widely promoted program of "direct instruction"

claims that "any child can learn if he's taught in the right way," the right way being the "carefully developed and unique programming and teaching strategies" of the system. To continue quoting from the promotional materials, "The teacher knows exactly what she has to teach. And how to teach it. All the steps for presenting a task, evaluating student responses, praising and correcting the children are carefully outlined." Having made every decision in advance, including when it is appropriate to praise, the program claims that "the teacher can concentrate fully on teaching" though what is left to be taught (apart from the program) is not specified. A more frankly commercial program combines mutually incompatible vogue words with hyperbole to claim that "The needs of the gifted, the average and the perceptually handicapped child are all met through (the program's) psycholinguistic approach.... Pupils are introduced to reading through the multisensory-motor method ... combined with intensive audio-visual activity." Also not untypically, this program claims to be indebted to eminent neurologists who had emphasized "the central role played by the integrative areas of the brain" and "the functional grouping of neural units in learning," as if the activities laid down in the program had some kind of unique neurophysiological status.

THE RELEVANCE OF RESEARCH

Another egregious characteristic of programs in education is their claim to be based upon research. The more elaborate and restrictive the program, the more its developers are likely to assert that its content and successes are validated by empirical evidence while instruction that is based on teacher insight and experience is likely to be dismissed as naive, intuitive, and primitive. "Child-centered" is used as a derogatory label.

However, despite all the claims and assumptions there is no evidence that any child ever learned to read because of a program. And probably there never could be such definitive evidence because no child (one would hope) is ever exposed to a "controlled" situation of only programmatic instruction without other access to written language in its manifold purposeful manifestations in the world. On the other hand, there is abundant empirical evidence that children have learned to read without benefit of formal instruction, either before they came to school or by interaction with teachers who were independently self-directed (Clark 1976; Torry 1979). Often such children have few social or intellectual advantages; they are precisely the children for whom programmatic instruction is supposed to be particularly appropriate.

Research has yet to look closely at the manner in which children frequently learn to read and write without or despite formal instruction,

nor indeed at what children actually learn as a consequence of such instruction. Instead research has tended to concentrate only on whether children learn whatever fragmented skills particular programs happen to teach. The research paradigm often contrasts an experimental group which receives a particular program with a "control" group which does not. Both groups are then tested on the specific instruction and the experimental group naturally does somewhat better. Alternatively, one program is compared with another, generally to show minimal difference between them (Bond and Dykstra 1967; Stebbins et al. 1977; House et al. 1978). The advantage of whatever such programs actually teach seems to wash out after Grade 3 (Williams 1979; Chall 1967) when matters of comprehension begin to assume inescapable proportions.

Considerable research remains to be done on how exactly children succeed in learning to read and write, but it will not be done by researchers who believe that such learning is a matter of mastering programmatic reading and writing skills. Instead there is a great need for longitudinal and ethnographic studies of how children come to make sense of print and its uses, such as those of Goodman (1980), Ferreiro (1978), and Heibert (1981), demonstrating for example that preschool children can understand functions and the general character of print long before they receive formal instruction.

Much more research could be done into what children can and must learn about reading and writing without recourse to programs, into how programs do and should relate to this prior knowledge, into what teachers who succeed in helping children learn to read and write actually do, into what exactly children who have learned to read and write have learned (from teachers and from programs), and also into what children who have failed to become readers and writers have learned. On the other hand, the fact that research demonstrates that readers have particular skills which nonreaders do not have should not be interpreted to mean that nonreaders will become readers if drilled in those particular skills, which may be a consequence rather than a cause of reading. Such has been found to be the case for knowledge of letter-names (Samuels 1971) and for familiarity with the conventional language of reading instruction (Downing and Oliver 1973-74).

TEACHERS VERSUS PROGRAMS

With their inevitably limited objectives, programs teach trivial aspects of literacy and they can teach that literacy is trivial. Children are learning all the time. Rather than demonstrate the utility of written language, programs may demonstrate that reading is nonsense and ritual, that writ-

ing is boring, that learning is threatening, that children are stupid, that teachers are puppets, that schools cannot be trusted and that children's own interests, cultures, and insights into language can be ignored. Teachers can demonstrate all these things too, but programs do so more efficiently.

The proliferation of programs in education today is unnecessary, irrelevant, and dangerous. Programs are unnecessary because millions of children have learned to be literate without the contemporary technology of instructional development and there is no evidence at all that the employment and enjoyment of literacy have increased with the growing reliance upon programs. There is no evidence that children who have difficulty becoming literate do better with impersonal programs (although they may exhibit irrelevant and limited learning from what the programs teach). Rather it is the children who have the least success in learning who most need personal contact, to be reassured of their ability to learn, and of the utility of what is to be learned. I am not saying that teachers cannot on occasion make independent use of material provided with programs, but that teachers should not be used by programs.

Programs tend to be irrelevant by their very nature. They demonstrate tasks rather than purposes. There is widespread anxiety today because many students leave school with poor writing and reading abilities. But the real tragedy is that competent readers and writers as well as the less able leave school with a lifelong aversion to reading and writing, which they regard as purely school activities, as trivial and tedious "work." Students of poor ability who are interested in reading and writing will always have the possibility of learning. But those who detest the activities are lost; they have learned from the wrong demonstrations.

Programs are dangerous because they may take the place of teachers. The issue is more critical today than ever before because more people seem to believe that the way to improve education is to operationalize it even further, and because the technology now exists to make teachers redundant. It is widely believed, especially among those who promote computer-based instruction, that children can "do all their learning" at a console, that microcomputers are cheaper than teachers (which is a fact) and that they are more efficient than teachers (which is true for what such devices teach best). It is perhaps ironic that dissatisfaction with the performance of teachers has tended to grow as education has become more systematized, yet the "solution" to the perceived decline in literacy and teacher effectiveness has continued to be the increase of program control at the expense of teacher autonomy.

Teachers are an endangered species. While being given less and less freedom to teach, they are being held more and more accountable. And in the comparison with technology teachers are being put at a crucial dis-

advantage. Teachers are not evaluated on whether children enjoy reading and writing, on how often and extensively children independently engage in reading and writing in their everyday lives, nor even on how fast they learn when the learning is relevant to their own individual interests. Instead children and teachers are evaluated on what the programs teach best, on standardized, decontextualized, fragmented "skills." The majority of reading tests favor programs, since they are restricted to measuring the same kinds of things that programs teach best, isolated facts and skills that can be dealt with one standardized step at a time.

The problem is also that while programs make teachers look ineffectual, teachers (and children) make programs look good. A teacher tells a child to spend an hour on worksheets and at the end of the day there will be time for independent reading. At the end of the year the child can read and the teacher gives all the credit to the worksheets. The way most teachers are trained not only leads them to be dependent upon programs but to give programs the credit for success, though not the blame for failure.

THE MARTIAN TEST

Imagine a Martian space traveler sent to earth to investigate the nature and utility of the reading and writing that earthlings find so important. Suppose the Martian decided that classrooms would be the best places to gather information. What would the Martian conclude reading and writing to be from the materials available and from the activities of teachers and children under the influence of programs? Could a reasonable report be sent back to Mars? As I said in my earlier article, the problem may not be that children do not learn in school but that they learn all the time. And like the Martian they will learn exactly what is demonstrated. Should we expect children to be any less misled than the Martian?

CONCLUSIONS

The critical issue confronting education today is not which programs are best for teaching children to read and to write, but what children will learn. Teachers can teach that literacy is useful, enjoyable, and attainable, provided they are left free to teach in an unprogrammed manner. Programs will teach something else—that literacy is what programs demonstrate.

I am not arguing against technology, I think microprocessors and every other aspect of contemporary technology should be important tools for learning—like typewriters and calculators—but not control devices for teaching. Children should learn to use technology but not to be used by

it. The question again is, "Who is in charge?"

Many people can think of teachers who override programs and who engage children in productive language learning. Many teachers believe they themselves are exceptions. And of course such teachers exist. My concern is that they may be losing the possibility of teaching. Programs are being thrust upon them, not only by school and political administrations but by parents and the media, all seemingly convinced that programmed education is a universal panacea. It will not help if teachers also believe that programs can only be benign.

Teachers as well as literacy are threatened. And only teachers can resist the threat. They can resist by asserting their crucial role in teaching literacy against all who assert otherwise. In the present decade, the most important educational function of teachers may well be outside the classroom rather than within it.

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5. 'BURN IT AT THE CASKET': RESEARCH, READING INSTRUCTION, AND CHILDREN'S LEARNING OF THE FIRST R

by Anne M. Bussis, Educational Testing Service

Anne Bussis deplores the current emphasis on isolated skills in the teaching and testing of reading. She shares the case study of a student who was able to read meaningful text, but could not do well on isolated skill tasks. As Bussis states, "Instructional programs in schools in the United States focus on 'essential' reading skills; yet these skills have no demonstrable relationship to learning how to read books, and they impose definitions of reading and standards of reading progress that are contrary to common sense." Current research accepted by most social scientists suggests that human beings construct meaning in order to make sense out of their experiences. Students often become confused when they are asked to focus on isolated skills that do not make sense to them. On the other hand, when teachers ask students to read books that convey useful information and/or provide pleasure, they are able to construct meaning and come to know that reading is a worthwhile activity.

Bussis suggests several practices that teachers can use to help students develop as readers: (a) provide for a range of appropriate reading materials; (b) set aside time daily for students to read self-selected books and to write on self-selected topics; (c) read aloud quality literature; and (d) talk individually with students and listen to them read.

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The King's Shadow is a book about a little king who was terribly afraid of his own shadow. In the opening lines of the story, the king asks his three wise men what to do about the shadow, and they respond as follows:

"Chop of your shadow's head," said one.

"Boil it in oil," said another.

"Burn it at the stake," said a third.

When Tim came to the third line, he quickly read, "'Burn it at the casket. . . ."

Tim is one of many children whose classroom learning was document-

ed for a two-year period (grades K-1 or 1-2) by teachers and researchers in the Collaborative Study of Reading of the Educational Testing Service (ETS). This program of research was funded by the National Institute of Education, the Ford Foundation, and ETS.

Substituting *casket* for *stake* is a puzzling error when considered in isolation, but it was fairly typical of other of Tim's renditions that went astray. His substitutions fell into a pattern; they tended to resemble anagrams, containing some or all of the letters of the text but in scrambled order. (With the exception of the first letters, *casket* is an anagram of *stake*.) This pattern was prominent in Tim's reading from May of first grade through November of second grade, and it is illustrated by the following additional examples. He read *want* for *what*, *blump* for *blurp*, *off* for *for*, *white* for *while*, *places* for *palace*, *last* for *least*, *still* for *silly*, *tried* for *tired*, *screeching* for *searching*, *left* for *felt*, and *Green Cold Superpie* for *Green Cloud Supreme* (the name of a dessert).

Aside from this scrambled-letter characteristic, many of Tim's errors also seemed both prompted and constrained by his anticipation of the story line or of the grammar of a sentence. Most of these mistakes occurred when Tim was reading a relatively unfamiliar book that challenged his capabilities; by and large, they did not daunt his efforts. He would continue reading, and he usually grasped the basic meaning of the text quite well.

Errors of a more debilitating nature surfaced when Tim's teacher asked him to stop and sound out words analytically. This was certainly not an unreasonable request, for Tim had been exposed to intensive instruction in letter/sound correspondence during the previous year in kindergarten, and his first-grade teacher had reinforced that instruction throughout the fall. The kindergarten program had emphasized various sounds of individual letters, of digraphs, and of consonant blends. When asked to apply this knowledge, Tim tried to oblige but invariably failed. He would reverse sound sequences or say he couldn't remember the correct sound; he produced whole words rather than a requested blend; and, if he did manage to articulate a sound sequence that closely approximated the text word, he usually did not recognize what he had said well enough to adjust to the proper enunciation.

In short, Tim seemed unable to process words in the letter-by-letter analytic fashion required by phonic decoding. After a particularly painful session of this nature in January of first grade, his teacher abandoned analytic decoding as a viable instructional approach with Tim. She would remind him of letter sounds from time to time or ask him the sound of a letter, but she never again required that he "'sound out" a whole word.

Tim's first-grade teacher taught a combined class, so she kept Tim in her classroom for second grade. By the end of second grade, Tim was a

competent and comprehending reader of texts that presented complex ideas and approximated adult books in vocabulary, grammar, and format. The following few lines illustrate a scientific text he read rapidly and discussed intelligently during his last tape-recorded oral reading in June of second grade.

> What did prehistoric man look like? That was the question some people had been asking even before the Paris Exhibition of 1867. Now many scientists all over Europe, including those who had once argued against De Perthe's whole theory, were eager to find the answer to that question. But they couldn't find the answer without first studying some of the clues which to this day are very rare—the actual bones of prehistoric man.*

Tim's progress in reading books was never matched by progress in his ability to perform phonic analysis, a fact periodically highlighted by the program of Individualized Criterion-Referenced Testing (ICRT) mandated by the school system. The particular ICRT system used in Tim's district breaks reading into 340 discrete "skills" and provides a card of test items for each one. This system is apparently designed to serve as the major instructional program in reading in a given school throughout the primary years, since it supposes that every child will receive instruction in every skill to the point of mastering the test items. But Tim's teacher didn't use the ICRT system for reading instruction—nor did most other teachers in the district. Rather, she tried to fit the system into her own program. She used the skill cards without giving her students specific prior instruction and then discussed with individual children the skills that they had failed to master.

Tim fared well on many skill cards, but he and his teacher nearly always had to talk about the cards that dealt with letter/sound relationships. However, since Tim and most of his classmates were reading books, the teacher wasn't too concerned about failures on the test items. She noted them in her records and, for purposes of the reading study, wrote periodic reports on Tim's performance. In February of second grade, for instance, she reported about ICRT item #165 as follows: "This was the short *i* vowel sound. The exercise shows two pictures of things that have identical vowel sounds, and the child is supposed to pick the one word from four alternatives that has the same vowel sound. It was hard for Tim."

Tim is a normal child in every respect, including the soundness of his sight and hearing. In fact, his reading errors and strategies were quite similar to the learning behaviors of many children in the ETS study, just as they were dissimilar to the behaviors of other children. Tim's case history illustrates nothing particularly unusual about him, his teacher, his

*_All About Prehistoric Cavemen_ (New York: Random House, 1959), p. 74.

school, or his school district. But it illustrates superbly the kind of incongruity that typifies reading instruction in many schools.

The ingredients that combine to produce incongruity have all been presented above:

- a child who is actually reading books but who cannot answer correctly many test items related to "essential skills";
- a teaching/testing program that focuses solely on such skills, on the premise that they are prerequisites to learning to read;
- a school district that mandates the use of these tests and the recording of scores, presumably in the interest of demonstrating accountability for children's progress; and
- a teacher caught in the middle, trying to steer as intelligent a course as possible between satisfying district policy and supporting children's efforts to learn how to read.

The principal fully backed the teacher's instructional approach in this instance, but that is not always the case. Principals may express uneasiness and even disapproval, if they more often observe children reading books than teachers directing concrete, identifiable reading instruction.

It seems bizarre that emphasis on "essential" reading skills displaces actual reading in the classroom, but this is what happens far too often. And research has repeatedly shown that less competent readers receive the lion's share of the drill on skills. The pattern is predictable. Children who are least able to read text when they enter school are given the least exposure to books. Moreover, this approach "works," in the sense that reading programs that focus on skills are often modestly or highly successful in accomplishing what they claim. They enable children to perform better on tests designed to measure what the programs teach.

This circular definition of success becomes quite maddening; it causes teachers, administrators, researchers, and parents to doubt their own rationality. Given enough arguments in favor of such programs and abundant proof of what they can accomplish, we begin to doubt what we *know* about reading and to look instead to the instructional programs to tell us what reading is. In Tim's case, for example, we may begin to wonder whether fluent reading and intelligent discussion of a book really count for much without mastery of the skills. Has Tim somehow fooled us? Is he adequately prepared for work in the upper grades without a firm grasp of short *i*? We are no longer certain of what it means to read.

Let's look at the evidence—or, in this case, lack of evidence. The International Reading Association (IRA) held a special conference of researchers in 1973 to consider tests of early reading, the skills they typically assess, and the relationship of these skills to reading acquisition. The researchers held diverse theories about reading acquisition; many of

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them, in their own research, focused on specific components of the reading process. Although they disagreed about the merits and drawbacks of different kinds of tests, they agreed on one thing: No available evidence indicated that *any* identifiable group of subskills was essential to reading.

In 1975, as programs emphasizing basic skills continued to proliferate, the National Institute of Education (NIE) issued a call for intensive research on essential skills and skill hierarchies in reading, along with a plan for accomplishing this end. The plan reflected the deliberation of scientists and educators, most of whom were sympathetic to an instructional approach that focused on reading skills. The plan began with a statement of research objectives:

> [to] determine if there are essential skills or processing skills related to reading, what they are, how to identify and validate them, how they are interrelated, and which are causally related to reading.

The research generated by this plan failed to identify essential skills, skill hierarchies, and causal connections—just as all the prior research, considered at the IRA conference in 1973, had failed to do so.

But studies of a very different nature were also being conducted in the 1970s, and they produced promising results. The findings were so promising, in fact, that they shaped a surer rationale and a very different set of objectives for the new research plan that the NIE issued in December 1980. The 1980 plan argued that the reading process is both constructive and interactive (i.e., interpretation and perception influence one another), that it involves many strategies for constructing meaning, and that a reader adapts the process to deal with different kinds of texts.

Moreover, the 1980 plan presented these characteristics of the reading process as sound conclusions derived from reasonable evidence. It also acknowledged the failure of previous efforts to produce a coherent theory to explain reading acquisition. It attributed much of this failure to the fact that "most early research focused on decoding skills and various methods of teaching children to be good decoders." Only after educators began to realize that many children could master decoding skills and still fail to read effectively did "the focus of research begin to expand," according to the 1980 NIE research plan.

A stranger to the world of educational research, policy, and practice might legitimately wonder how we could have allowed the current situation to develop. Instructional programs in U.S. schools focus on "essential" reading skills; yet these skills have no demonstrable relationship to learning how to read books, and they impose definitions of reading and standards of reading progress that are contrary to common sense. The stranger would have a good point.

To develop a more effective approach to reading instruction, we must first understand some of the evidence on which the NIE based its 1980 statement. The most influential research is not all of a kind, nor did it spring full-blown from research efforts of the 1970s. It represents logical extensions of many years of previous investigations of memory, perception, thought, and language—all of which support a particular view of how the brain functions. This view is now so thoroughly documented that it is accepted as a "given" by most social scientists.

- The brain constructs perceptions and thoughts (instead of behaving as a sponge).
- The central function of the brain is to create meaning.
- Meaning arises through the perception and interpretation of patterns (or relationships) in events.
- Anticipation and intention influence brain activity.

Collectively, these characteristics imply that humans neither "soak up" elements in the environment nor respond directly to environmental stimuli (except in instinctive behavior). Instead, humans create symbolic representations of the environment and then act in accordance with the meanings they have constructed. Although meaning is relative in the sense that it may change somewhat from one context or culture to another, from one developmental stage to another, and from one individual to another, there seems to be nothing relative about its function in life. People in every culture and at every age strive to make their experiences as meaningful as possible. When they find themselves in situations that make little sense and that they cannot anticipate effectively, they become confused, anxious, and often hesitant to act at all.

The propensity of humans to construct meaning is one reason why books that convey meaningful information or tell comprehensible stories are so important to children. And because children—like adults—constantly construct meaning, their learning behaviors constitute a continuous source of information from which teachers can infer the meanings that children are (or are not) constructing in the classroom.

To go beyond these general implications in order to clarify the nature of reading, I must first redefine some terms that educators often use interchangeably and without much thought.

Information becomes potentially knowable and meaningful only when it stems from events that an individual actually heeds. But heeding alone does not suffice to transform information into knowledge. An individual must discern some unifying pattern in events before information becomes predictable and thus interpretable. Only when a person interprets information—however tentatively—does information qualify as knowledge. The interpretation need not be formulated in words; many experi-

ences are represented in nonarticulate form. But an individual must note and interpret a pattern before he or she can be said to know something. In other words, information exists "out there" in the physical/social/cultural world or in physiological sensations arising from within the body. *Knowledge* exists in the mind.

This distinction between information and knowledge (and the fact that heeding is not equivalent to knowing) calls into question another popular instructional concern: time on task. Those researchers who stress time on task argue that the more time a child spends attending to instructional information (within reasonable bounds), the more he or she will learn. The problem with this logic is that the human brain doesn't always comply. An individual could conceivably attend to a particular kind of information for years without ever discerning a pattern that unifies the information or relates it to other meaningful patterns. Such a dismal outcome is not only theoretically possible but also quite probable, if the information an individual heeds consists primarily of isolated fragments of an event. Sufficient attention to information is an important and rather obvious condition of learning, but it guarantees nothing.

Written language contains information that is crucial to reading, and the beginning reader must figure out what this information means. This task involves separating irrelevant data (the size and style of print, for example) from potentially meaningful data, and then detecting patterns that make the potentially meaningful information predictable and interpretable. Since pattern detection is the crucial task and since patterns involve relationships between both similar and contrasting events, rich data are more useful to the learner than meager data. For this reason, books that present written language in its naturally occurring variations are helpful to children.

The human brain is an exquisitely designed pattern detector, and it works with remarkable ease and efficiency when it receives appropriate information. Perhaps the most impressive testimony to the prowess of the brain is the fact that infants detect and assimilate the underlying sound patterns and grammatical structures of their native language from the rich speech environment that surrounds them. When the brain must try to construct a coherent whole from fragmented data, however, its efficiency plummets to mediocre at best. Presenting children with written language in piecemeal fashion may seem a logical instructional approach to reading, but it actually imposes formidable burdens on the learner.

As children successfully detect the underlying patterns in written language, they acquire more and more knowledge. However, knowledge about writing does not equate with skill in reading, and to assume that it does will lead an instructional program off course. Reading is a singular skill. A curriculum that focuses on reading skills (in the plural) actu-

ally attempts to foster instead various kinds of formal knowledge about written language—some of it important for reading, some of it not, and much of it very difficult to learn if one is not already able to read. Such curricula test children's ability to demonstrate this formal knowledge about written language.

A *skill* supposes intention, it is affected by attitudes, and it depends on knowledge. Yet it is none of these. A skill demands the coordination or orchestration of diverse knowledge to achieve a particular result that is characterized by particular constraints or criteria. Were there no constraints or criteria, virtually any action could be called a skill. The skill of reading requires the orchestration of at least five kinds of orchestration of at least five kinds of knowledge in order to construct meaning from a text while maintaining reasonable fluency and reasonable faithfulness to the information that has been encoded in the text. This is the singular skill of reading.

Beginners execute any skill more awkwardly and less proficiently than do experts. The only way to gain the proficiency that comes with experience is to practice a skill in its overall complexity. Orchestration and coordination are brain functions that seem to be learned only through repeated attempts to perform them. Beginning readers may wish to concentrate on different aspects of the skill at times (e.g., the flow or the accuracy), and they must limit their ambitions at first (e.g., reading a few sentences or short books). But practice is what counts.

The paradox of learning a skill is that neophytes can begin to practice before they control all the knowledge that a polished performance requires. In fact, there is no other way to begin learning a skill. Practice can start as soon as an individual possesses some of the necessary knowledge and understands what the skill is intended to accomplish. The brain picks up additional knowledge in the course of practice. This explains why initial stages of practice are always both fumbling and fatiguing. Beginners are operating under the handicap of incomplete knowledge, they are still learning the crucial act of orchestration, and they are detecting and interpreting relevant patterns of information along the way. Fortunately, the human brain can handle such a complex task quite well. But the effort is tiring, and a beginner needs encouragement from others and the motivation of a desirable end result. If appropriate support is not forthcoming or if outcomes of early practice sessions continually prove dissatisfying and relatively meaningless, the learner may eventually decide that the reward does not justify the effort.

Children have two strong knowledge resources for reading acquisition. They have a tacit understanding of the grammatical structures and sound patterns of English, and they know a great deal about the everyday world. These resources help them to comprehend and to anticipate the

content of books. Children who have attended to such familiar forms of writing as words on signs, on cereal boxes, and on television commercials usually possess implicit knowledge of some letter/sound relationships as well.

The best way to support a beginning reader is to tell him or her what the text says. When children realize that a particular graphic configuration represents "once upon a time" or "Curious George went to the store," they can begin to detect recurring features within the configuration and to relate these to the meaning that the configuration conveys. When they tentatively apply these interpretations to other familiar lines of text, learning to read has begun. As practice proceeds, children acquire more and more knowledge about the two kinds of information encoded in writing: phonetic (i.e., letter/sound) relationships and spelling patterns.

A child who makes any progress in reading at all will, of necessity, interpret many letter/sound relationships. Much of this knowledge may remain implicit, however, and in such form may not lead the beginner much beyond the initial consonant sounds of unknown words. Explicit knowledge of the rules that govern letter/sound relationships is a prerequisite for the kind of phonetic analysis that helps to unlock whole words. Many children can use these formal rules to advantage in learning to read, but many others—like Tim—either cannot or will not.

Tim's classmate, Rita, thrived on instruction in phonics and would try to use what she knew to solve every unknown word she encountered. If she couldn't figure out a word, she would ask her teacher or someone else for help before moving on. In fact, Rita approached text as if every word were a crucial step in a straight and orderly path to meaning. She never skipped a word in her beginning practice efforts, nor would she rest with substituting a good guess for an unknown word. Rita was able to sound out many difficult words by the end of first grade, but by that time her path to meaning had also broadened. She was willing to settle for some intelligent guesses in the interest of getting on with a text, and she was relying heavily on the kind of information on which Tim seemed to focus from the very first.

Tim almost always tackled a new book as if he were eager to get on with the text. He would take a stab at troublesome words, skip them, offer substitute words, or use some combination of these strategies. He tended to read rapidly, and his reading behavior suggested that he was dealing with relatively broad spans of print. These facts alone suggest that Tim was attending to the visual configurations of whole words (i.e., their spellings), rather than to the sounds of the individual letters in each word (i.e., phonetics). And the nature of his errors bears out this hypothesis. Although only a few of Tim's errors seemed to represent

faulty interpretations of the sound structures of words, many of his errors reflected faulty interpretations of the spelling structures of words.

Tim was actually attending to the dominant information encoded in writing. Phonetic information may receive more publicity, but linguistic analysis has shown that written English emphasizes consistent spellings more than it emphasizes consistent letter/sound relationships. When the letter *s* is applied at the end of a word, for example, it becomes a meaningful word part—a suffix that always signals the same meaning (i.e., plurality) but that can have any one of three pronunciations (as in *cats*, *cars*, or *houses*). Written English does not indicate the particular sound of the letter *s* in a given word, because native speakers intuitively predict and accommodate to shifts in the sound of this letter. If the sound, rather than the meaning, of *s* were the more important information to convey, then the writing system would indicate plurality by three different spellings.

The spelling principle is especially useful when root words are combined with suffixes. *National* retains the root word *nation*; the suffix *-al* simultaneously signals that the word is an adjective. Although the suffix changes the sound of the first vowel (from the long *a* of nation to the short *a* of national), English speakers make this shift quite unconsciously. The more important information that the writing system has emphasized is the intimate bond of meaning between the two words. Thus we can predictably transform nouns into adjectives or verbs, adjectives into adverbs, and verbs into nouns by tacking on such endings as *-al*, *-able*, *-ive*, *-ful*, *-less*, *-ize*, *-ate*, *-ly*, *-ship*, *-tion*, *-ity*, and so on.

The semantic information encoded in writing suggests that a learner must eventually attend to the visual organization of spelling patterns if he or she is ever to become a proficient reader. Tim's history suggests that he focused on such organizational features very early in his learning. And Tim's history in this respect duplicates the histories of many other children in the ETS reading study, just as Rita's general learning progress duplicates the progress of many of her peers.

I have emphasized learning, because good teaching begins with an understanding of learning—particularly when it comes to skills. Teachers and curriculum developers cannot crawl inside children's minds and manipulate the orchestration of knowledge that is necessary for reading. But teachers can make this task easy or hard, rewarding or painful, worthwhile or nor worthwhile for students by the provisions they make in the classroom and the help that they offer.

Specific provisions and kinds of help will depend on the child. But let me suggest five general practices.

1. Provide a range of reading materials in the classroom. For the young learner, these materials might include alphabet and counting

books, picture books, informational and reference books, classics of children's literature, easy-to-read trade books, and a variety of beginning reading series.

2. Provide time each day for children to read books of their own choosing or—in the case of youngsters who are not yet reading—to look at pictures in self-selected books.

3. Provide time for children to write, preferably every day but at least two or three times each week. Young children can begin by dictating sentences or words to their teachers or to classroom aides and then copying what these adults write for them.

4. Read to the class each day, varying the selections between well-written imaginative literature and interesting informational books.

5. Work individually with children at least some of the time. Listen to each child read or discuss what he or she has read.

The first four practices give children several perspectives on the written word and encourage them to exercise intelligence in choosing, deciphering, and making sense of books and other writing. These practices do not add up to a full instructional program. But they do lend coherence and direction to otherwise diverse instructional approaches (whether phonic, basal, or language experience) in diverse instructional settings (whether large groups, small groups, or one-to-one). The practices are not my idea; rather, they are the key similarities that characterize the classrooms of the most successful teachers I know.

The fifth practice allows teachers to observe their students. If a general understanding of learning is the first principle of effective teaching, then careful observation of learners must rank a close second. In fact, the first principle presupposes the second. But observation must be of a special kind. The teacher who monitors only students' correct responses will derive relatively little data to inform his or her instructional decisions. Merely counting up errors will add nothing more. It is the nature of children's errors and their general approach to text that reveal what is happening in the orchestration and comprehension process.

"Burn it at the casket" and "Green Cold Superpie" may never be uttered again. Nor will other children manifest a desire to get on with the story or to read every word of text in precisely the same ways as Tim and Rita did. But other children will manifest intentions, strategies, struggles, and errors that are just as revealing—if they have opportunities to read interesting books. And knowledgeable, observant teachers will be informed by children's reading behaviors—if they are freed from paperwork long enough to observe.

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6. EARLY PHONICS INSTRUCTION: ITS EFFECT ON LITERACY DEVELOPMENT

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Maryann Manning, Gary Manning, and Constance Kamii present the effects of phonics instruction on the literacy development of the Mannings' daughter. When she entered kindergarten, Marilee had confidence in herself as a reader and writer, but she lost this sureness when formal phonics instruction was imposed. As she became preoccupied with the newly acquired phonics information, she stopped focusing on meaning in her reading and no longer thought about the expression of thoughts and ideas in her writing.

Marilee's kindergarten teacher was outstanding. Her classroom environment was developmentally sound throughout the day, except for the period of formal phonics instruction. Like many other good teachers, Marilee's teacher felt that she must follow the official curriculum, including phonics instruction, especially since she also had been told that her students must do well on tests at the end of the year.

As this chapter indicates, teachers are too often treated as workers on an assembly line; autonomous teachers should be accorded the respect and trust they deserve. In recognizing the positive contributions that these professionals can make to students' development, we also recognize the necessity of educating new teachers to practice their craft with continuous intellectual inquiry and responsible action. The authors urge support for commendable teachers, like Marilee's kindergarten teacher, and encourage natural literacy learning rather than requirements for formal and isolated phonics instruction. It is also worth noting that current research and theory often match the intuition and common sense of effective teachers of young children.

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Phonics is being taught in many kindergartens and most first grades in the nation to introduce children to reading and spelling. A large number of educators believe that phonics instruction is necessary for children to learn to read and spell, but many psycholinguists question the value of this instruction. The teaching of phonics has been a source of controversy

since Rudolf Flesch's (1955) book *Why Johnny Can't Read*. Chall (1967) addressed the debate in her book *Learning To Read: The Great Debate*, concluding that a code-emphasis approach produced better reading achievement than a meaning-emphasis one. Since the publication of Chall's book, we have seen a movement toward greater code-emphasis approaches in beginning reading.

The subject of phonics instruction has been very perplexing to us. As classroom teachers many years ago, two of us were made to feel guilty if we didn't teach phonics skills included in the basal readers we were using. Yet the direct teaching of phonics skills, which often resulted in "mastery," did not necessarily lead to children's ability to read a text. We were also frustrated teaching the phonics skills suggested in spelling books; the instruction seemed to cause confusion for many children. We were puzzled by children who spelled words in their own ways, and by the similarities among children's errors in the same age group.

Research during the past decade has enlightened us by providing insights into how children develop as written language users. Ferreiro and Teberosky (1982) documented the constructive process in both reading and spelling, and their findings have been confirmed in Switzerland, Mexico, Spain, France, and Italy (personal communication in conversations with E. Ferreiro, A. Teberosky, and H. Sinclair of the University of Geneva, 1984 to present). Beers, Beers, and Grant (1977); Bissex (1980); Chomsky (1971, 1979); Gentry and Henderson (1978); Read (1971, 1975); Schickedanz (1986); and Zuttell (1978) have all shown how children develop as spellers and how their errors are manifestations of their efforts to work out personally a system of rules. We believe that psycholinguistic research is congruent with Piaget's theory and is but one more example of constructivism, the view that children did not internalize knowledge directly from the environment, but construct it from within by going through one level after another of being "wrong."

Still, the debate continues concerning phonics instruction for beginning readers and spellers. While proponents of phonics and psycholinguistics argue in support of their respective positions, there is very little precise information on what happens to developing readers and spellers when phonics instruction is imposed on them. To address the need for such information and to air some disturbing questions raised by our personal experience, we describe in some detail what happened to one six-year-old when she received phonics instruction in kindergarten. Marilee, the six-year-old we will talk about, is the daughter of the first two authors. She was reading predictable books before kindergarten. She was also writing: notes to the tooth fairy, letters to relatives for birthdays and holidays, greetings to friends, and notes to visitors. She had a large audience who appreciated her reading and invented spelling: her parents, rel-

atives, and friends.

Marilee's teacher was kind, loving, and knowledgeable. However, she felt compelled to teach phonics because of mandates from the school system and the state that heavily emphasized test scores. Needless to say, these tests included items on phonics. Marilee thus received a heavy dose of phonics instruction. When we questioned this practice in parent-teacher conference, the teacher replied emphatically that if she didn't teach phonics, her pupils would not do well on the tests. The phonics instruction led to confusion for Marilee, and we will give here a few examples observed at home.

SUPER E INSTRUCTION

Marilee received instruction on *Super E*, the name given to the following rule: In certain two-vowel words ending with *e*, the final *e* is not sounded and the first vowel usually represents its long sound. When spelling words with short vowels such as *cap*, Marilee began to spend a great deal of time muttering statements like, "I know you don't use *Super E* because the vowel isn't screaming its name." Moreover, she continued to concentrate on this idea with similar words such as *hat*, *ham*, and *ten* even though she already knew how to spell these words before the instruction. Thus, the *Super E* emphasis caused her to become preoccupied with how to spell words she already knew how to spell, taking attention away from the thoughts and ideas she wanted to express in writing.

Long-vowel instruction confused her because the new knowledge did not fit into her spelling system and her stage of development. She started reciting mnemonic nonsense such as *April Apple*, *Edith Egg*, *Isaiah Indian*, *Opy Octopus*, and *Ulysses Umbrella*. She spelled *mile* as before, *mil*, but proceeded to make strange speeches such as the following : "*M* and *l* aren't vowels and *i* is a vowel. The *i* is like *Isaiah Indian* and *i* is being scrunched by the two consonants *m* and *l*, so *Super E* comes in to save him. He is the rescuer. Hurray for *Super E*." Then she added an *e*. For some time thereafter, she would simply say, "The vowel is screaming its name, so *Super E* comes in to save him." Sometimes she would say, "It doesn't matter if a consonant says its name, it's just when a vowel screams its name that you have to think."

Some observers might say that Marilee profited from the instruction. And, indeed, she did spell *mile* correctly after thinking about *Super E*. Further, she would probably have shown competence on a test measuring such knowledge. However, the time and effort spent on learning this knowledge would have been better spent on actual reading and writing.

As Bussis (1982) points out, the emphasis on "essential" skills takes the place of actual reading and writing in the classroom. Marilee and her classmates would eventually become able to spell *mile* anyway through more indirect means as suggested by Gentry and Henderson (1978) and Kamii and Randazzo (1985).

OTHER VOWEL INSTRUCTION

Instruction about the *y* at the ends of words also created a problem. Marilee said that she did not know much about *y*, but that it was sometimes a vowel. She also said that a word like *fry* had to be spelled differently from *fri* "because the teacher put it on the chalkboard." However, she still felt that *fry* should be *fri*; *fancy* should be *fanse*; *jelly* should be *jele*; *shy* should be *si*; *story* should be *store*; and *happy* should be *hape*. We could see her confusion as she wrote *hape*, finally saying, "A *y* just wouldn't be right to me."

After instruction on the double *o*, she doubled many letters. For example, she said, "*Hook* is spelled *huc*, so it must be *huuc*." In the word *school*, the spelling changed from *scol* to *scool*.

DIGRAPHS AND CONSONANT BLENDS

An area of phonics instruction that seemed to provide the greatest relief for Marilee was digraphs and blends. She had hesitated when trying to write words with *th*, *sh*, and *ch*. Before digraph instruction *bath* was *bah*, *crash* was *cras*, and *thought* was *tot*. Consonant blend instruction gave her the letters to represent sounds that she had been dissatisfied with as she wrote. She started using *br*, *gr*, *sl*, *sw*, and other blends without confusion in her writing.

The observations are in agreement with Henderson (1985), who noted that children who seem to know short vowels learn blends and digraphs quite easily. He pointed out that *sh*, *th*, and *ch* rarely cause difficulty for beginners. Marilee, like other children, learned them quickly, making few errors thereafter.

READING

Like other children, Marilee was aware of environmental print from an early age. For instance, when she first started to talk, she could find Coke signs and would say "Coke." She continued to develop as a reader and was able to read several predictable books before she entered kindergarten.

The same group of people who appreciated her early writing also ap-

preciated her early reading. They listened to her tell about pictures and "read" from memory books that had been read to her repeatedly. After phonics instruction was initiated in kindergarten, she felt compelled to use her "new knowledge" on all words, even words she had read prior to school. She would "c-c-c-c" until she could say the next sound represented in the word. Instead of focusing on meaning, as she had been doing, she tried to "sound out" everything. She labored over words, gave up, and often asked for help. Unfortunately, she stopped relying on her own system of using a combination of initial consonants and context. In summary, it took a while before she abandoned her new phonics information and went back to focusing on meaning.

DISCUSSION AND CONCLUSIONS

We saw that Marilee sometimes used her new information and overcorrected, as in *huuc* for *hook*, and at other times thought about her phonics instruction but rejected the rule taught in favor of her own invented spelling. With the exception of digraphs and consonant blends, the instruction caused confusion and reduced her confidence in her own ability to figure things out. She also began to be preoccupied with the newly acquired phonics information rather than focusing on getting meaning from her reading, or, in the case of writing, focusing on the ideas and thoughts she wanted to express. As a result, reading and writing became less fluent, and the activities less enjoyable. Graves (1978) made a similar observation concerning writing when emphasis is placed on the surface level features of words. He said that teachers' correction of invented spelling discourages many young children from writing words they are not certain about, and this often leads to poor writing and discomfort with it.

We are not against the teaching of sound-symbol correspondence, as children need this information to become literate. What we question is the way this instruction is generally given today based on the erroneous assumptions that (1) children come to school not knowing anything about our system of writing, and (2) they learn to read and write by having isolated bits of phonics information sequentially taught by association.

All children come to school already knowing something about our system of writing (Ferreiro and Teberosky, 1982; Kontos, 1986). They are not passive vessels that remain empty until they go to school; they have already thought about the written squiggles they see on boxes, signs, the television screen, and elsewhere. Marilee happened to be at a relatively high level of development, and she was not permanently harmed by the phonics instruction she received. However, the difficulty and confusion

she experienced made us wonder about the frustration and loss of confidence other children must endure, especially if they come from backgrounds that place less emphasis on broad literacy experiences at home. Marilee had already learned that attending to meaning is important in reading and writing. Phonics instruction given to children without this prior knowledge could mislead them completely about what reading and writing are all about.

Let's consider children who are at a lower developmental level in their spelling and may merely juxtapose letters they know when they write. For instance, they may write *LFTO* when asked to write *mother*. Phonics instruction may prevent these children from constructing the system at the next level, the consonantal level (Manning, Long, Manning, and Kamii, 1987). The system the child constructs at the consonantal level consists only of consonants, as can be seen in the child who writes *PNMT* for *punishment*. This level is an important achievement because it represents the first establishment of correspondences between what the child writes and what she utters. It is also an important achievement because the child constructs the next level, called the alphabetic level, out of the consonantal system. At this level, the child uses vowels and consonants and might spell the word *punishment* as *puneshmint*.

Marilee was already at the alphabetic level and learned certain things from instruction, such as digraphs and consonant blends, but did not learn from other rules. She accepted only the elements that she could fit into her natural system. Thus, she learned not by having isolated bits of phonics instruction sequentially taught by association but by constructing a system in a way that made sense to her. This is how she and other children go through one level after another of being "wrong."

Marilee's teacher defended her phonics teaching by saying that phonics instruction was necessary to produce higher test scores. Unfortunately, success or failure in this area is often judged by standardized and/or criterion-referenced tests. As Bussis (1982) suggests, many teachers teach the "essential" skills because these same "essential" skills are measured by tests. Phonics teaching often improves children's test scores, but educators must ask themselves whether their objectives are only to produce higher test scores or to develop literate and intelligent individuals. Too often, children learn to read and write but find these activities unpleasant.

A great deal is now known about children's development of thinking, reading, and writing. Unfortunately, most educators are not aware of this information. Many do not know about the developmental spelling research listed at the beginning of this [chapter], which is more than 10 years old, or Piaget's constructivism, which is more than a half-century old. Many educators, when they become knowledgeable about develop-

mental ideas, often reconsider their ideas about formal phonics instruction, which reflects behaviorism and/or associationism. In this [chapter], we have shown what happened to one learner when her teacher taught formal phonics. Further research is needed on the precise effects of formal phonics instruction if we are to know what kind of phonics instruction will assist the beginning reader and writer.

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7. READING COMPREHENSION: FROM CARDBOARD KEYS TO MEANINGFUL TEXTS

by Barbara A. Lewis, University of Alabama at Birmingham

Barbara Lewis discusses several aspects of reading comprehension. She uses the analogy of learning to play the piano using cardboard keys that make no music with learning to read using isolated skills activities that make no sense. She also describes several differences between a skills view and a meaning-centered view of reading comprehension. She concludes with a brief description of a visit to a second-grade classroom where students are involved in a variety of meaningful activities.

Many teachers realize the pitfalls of a reading program with meaningless "cardboard key" activities. They are, therefore, putting meaningful texts and practices back into their reading programs.

As I observe students wading through reading comprehension lessons decontexualized from real purposes and real meanings, I am often reminded of my first months of piano lessons. The way in which I began learning about making music is similar in many respects to the way in which students begin learning about making sense of written communication.

When I was seven, my parents, unswayed by the fact that we did not own a piano, decided that it was time for me to take lessons. I don't know if they were convinced by a teacher who needed students that a piano was not absolutely necessary for a beginner, or whether they decided that the positive value of lessons would offset the lack of opportunity for real practice, but, for whatever reason, lessons began. During the first lesson, sitting at the big piano in my teacher's house and learning about the keyboard, middle C, and simple notation, I knew that this was what playing was all about. When it was time for me to leave, however, my teacher surprised me by bringing out a narrow piece of cardboard folded in thirds. When opened, it was a full-size replica of three octaves of a piano keyboard. Everyday, she said, I was to practice lessons on the keyboard, and dutifully I did just that. Each night after supper, I carefully unfolded the keyboard onto the kitchen table and thumped out my lesson. Night after night I thumped away—CC, GG, AA, G—but since there was nothing but silence, I had no way of knowing if I was playing

anything that sounded like music. Soon my initial anticipation gave way to frustration. A real piano arrived six months later, just in time.

Every day millions of students are given "cardboard keys" to help them gain meaning from text. Like the cardboard keys, skills-oriented instruction provides practice without purpose, and reading without meaning.

For several decades, reading instruction has been influenced by the notion that reading is a set of skills that can be learned through instruction. This view stems from early studies of the reading process in which word identification and comprehension were named as major components, each divided into numerous subcomponents. Although several studies have identified various reasoning abilities associated with comprehension, no evidence has been found to support the idea that there is a set of skills, or a particular hierarchy of skills, specific to comprehension (Rosenshine 1980).

Nevertheless, many teachers continue to view reading comprehension as a set of separate and independent skills and use materials consistent with this view. Most commercial materials are organized so that skills are sequentially introduced and reinforced from one level to the next. For the most part, instruction of a particular skill is followed by practice in a workbook or on worksheets. The practice exercises consist of isolated, decontextualized sentences, paragraphs, and short passages. In a skills-oriented program, the emphasis of the teacher and the focus of the materials seem to be more on practicing comprehension skills than on comprehending meaningful text. While a skills-oriented view currently dominates reading instruction in the United States, more and more educators are realizing that students' comprehension suffers from such instruction.

Recent research in reading comprehension has revealed that comprehension is a process of constructing meaning. (See Anderson and Pearson 1984; Mason et al. 1984; and Rumelhart 1987, for a comprehensive treatment of a schema-theoretic view of reading comprehension.) In a synthesis of recent research, McNeil (1987) offers the following description of reading comprehension:

> It is a process of using one's existing knowledge (schemata) to interpret text in order to construe meaning. Although writers structure texts for their given purposes, readers interpret and arrive at their own construction of what the text means. Comprehension includes understanding the information in the text as well as changing the knowledge used to understand the text in the first place. (p. 1)

According to this view, a reader continually makes inferences about meaning based on prior knowledge. A reciprocal action between the

reader and text occurs as the reader gathers clues about meaning. Hypotheses about meaning based on what the reader already knows are accepted or rejected and in turn influence how subsequent meaning is constructed. If readers do not have the necessary background knowledge or for some reason it is not activated, they will not be able to make the relationships necessary for making sense out of text. With adequate background knowledge, readers can construct meaning appropriate to the text by using their knowledge of the world as they read.

The remainder of this chapter provides an account of how one teacher uses practices that support readers' construction of meaning. She is a friend and we frequently talk about her second grade class. Recently she invited me to visit and see firsthand what she had been telling me.

The first thing I noticed as I entered her room was an abundant array of materials that varied in content and complexity. Print was everywhere and was easily accessible for use. A few well-worn "big books" were propped up in a corner, while nearby several shelves were filled with favorite children's books. *Anno's Journey*, *Jumanji*, and an old Mother Goose book stood ready as did other picture books, collections of poetry, and works of fiction. On a table, under a sign announcing "Best of the Best," was a boxed collection of paperbacks. Around the room were texts written by the teacher and the students. Lining the walls was students' work from the week before.

Several different things were going on at the same time; a hum of purposeful activity filled the room as students worked individually, in pairs, and in small groups. By the door, a stack of reference books was sitting on the edge of a platform filled with painted salt-dough mountains, valleys, oceans, and deserts. The class had been studying landforms, and as I watched, a group of students added to their forms tiny cacti, trees, and other adornments they thought necessary. Labels came next, and each mountain and valley was duly noted. Occasionally, students flipped through reference books and collaborated, when necessary, to decide which ideas they wanted to use. On the other side of the room, another group was bringing to a close its study of works by Leo Lionni. Students were writing descriptions of a favorite book and sharing them with each other. I noticed that they went to the books again and again to confirm that "best" book. When finished, they hung their descriptions under the books resting on the chalk tray and took off to do more of their morning work. In the "Question Corner," a few students were reading simple books about sea animals. When finished reading they wrote, but did not answer, three questions about something they wanted to know that the text did not answer. They dropped their questions in a question box to be posed to the whole group later for a general discussion.

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The teacher moved among the students asking pertinent questions and responding to their work. Eventually, she sensed that it was time for a change of pace and gathered them into a large group to share a new book.

During the morning, the usual disruptions occurred that anyone who has ever been in a second-grade class would expect. The transition from one activity to another did not always go as smoothly as the teacher wanted; nonetheless, many things were happening in this classroom that supported the notion of comprehension as construction of knowledge. One important way was by the range and depth of reading materials available to students. Not only was there quality literature for these second graders, but reference books and simple content area textbooks, as well. Even the writing of their peers served as text as they eagerly read each other's writing. By using these resources continually in this way, students' knowledge of the world will constantly expand. The more they read in a wide variety of areas, the more they will be ready to engage with subsequent texts because of the storehouse of meanings they have constructed.

Comprehension was supported in another way because reading was an integral and natural part of everything else that happened; reading was not relegated to a certain time slot during the day. Students in this class read to construct landforms, read to write, read to question, and read to enjoy. They had real purposes for reading, and as a result comprehension was facilitated. If students want to know, they are sensitive to a loss of meaning when it occurs. They will reread, read more slowly, or perhaps simply ask for help. Giving students purposes for reading encourages them to monitor their own understanding, and prepares the way for the reading of increasingly more difficult texts.

The students I observed were constantly in the process of constructing meaning as they interacted with their peers. The conversations I overheard let me know that these students did not allow each other to get away with mistaken ideas, especially if the misconceptions had a bearing on a group project. Social interaction, then, was another way in which reading for meaning occurred. Students clarified what they knew by testing their ideas against those of others. Understanding of text was refined when they had the opportunity to discuss in depth the stories and books they had read. Through dialogue, they found that sometimes the meaning they had constructed was totally different from that of others. By talking out each other's meanings, their thinking was altered and new constructions arose.

Another factor supporting comprehension was that the reasoning abilities necessary for comprehension were interrelated and reinforced throughout the day. The students I saw were engaged in a variety of ac-

tivities involving reading and were active processors of print. They did not use "identifying main ideas" for one activity and "recognizing cause and effect" for another. There was an overlap in the many kinds of thinking needed for making meaning. Students had multiple opportunities for inferencing, sequencing, drawing conclusions, predicting, and using other reasoning abilities as they solved real problems. As they worked to create their landforms or descriptions of their favorite books, they used their reasoning abilities to interpret information from the text in terms of their own understanding.

The amount of print, the opportunity to participate in a wide variety of activities related to reading, and social interaction were all important factors in helping the students construct meaning from text. The most important factor of all, of course, was the teacher. Through careful observation, she knew when meaning had broken down and stepped in to offer another book or a helpful hint. Often with just a skillful question, she led students to find the relationships between the text and their own background knowledge. And, by always gently probing their thinking about what they had read, she helped them learn how to become their own searchers after meaning. Through the many ways in which she guided their interactions with print, she set them on the path to understanding.

I conclude this chapter on the same note on which I began. To learn to make music, I was given cardboard keys. Students, likewise, have been given meaningless practice activities with the intention of helping them to improve their reading comprehension. Fortunately, however, reading programs are now changing as cardboard keys are being replaced with meaningful texts.

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8. WHEN WAS 1864? READING COMPREHENSION—MAKING IT WORK

by Maryann Manning, Gary Manning, and Constance Kamii, University of Alabama at Birmingham

Maryann Manning, Gary Manning, and Constance Kamii present the results of an interview with a student after she read from the book, Caddie Woodlawn. *They analyze Roberta's responses, using a constructivist framework, which is congruent with the whole-language view. In fact, they see constructivism, Piaget's theory, as the underlying theory for whole language. According to Piaget, knowledge develops as an organized whole. Students' reading comprehension, then, depends on the knowledge they bring to a text. As they read and understand, students modify what they already know. In other words, comprehension is not just the accumulation of bits of information from the outside. Reading is an activity in which students construct meaning; consequently, the texts they read should be whole texts that are meaningful.*

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There are several subtle facets to the fascinating subject of reading comprehension. If you analyze it, what is comprehension really all about? How can you, as a teacher, foster its development?

To answer these questions we will begin with an interview of a bright, middle-class seven-year-old we will call Roberta. She was given the book *Caddie Woodlawn*, and was asked to look at the cover of the book before being asked, "What do you think the book is about?" She responded by saying, "It must be about Indians on a farm and the girl must be Caddie Woodlawn since the name of the book is a girl's name."

She was then asked to read the following introductory paragraph of the book which is, by the way, recommended for middle-grade students:

> In 1864 Caddie Woodlawn was eleven, and as wild a little tomboy as ever ran the wood of western Wisconsin. She was the despair of her mother and of her elder sister Clara. But her father watched her with a little shine of pride in his eyes and her brothers accepted her as one of themselves without a question. Indeed, Tom, who was two years older, and Warren, who was two years younger than Caddie, needed Caddie to link them together into an inseparable trio. Together they got in and out of more scrapes and adventures than any one of them could have imagined alone. And in those pioneer days Wisconsin

offered plenty of opportunities for adventure to three wide-eyed, red-headed youngsters.

What did Roberta comprehend when she read this paragraph? To find out, she was asked the following questions while being allowed to reread the text as many times as she wanted—

Q: What was the paragraph about?
A: It was about Caddie Woodlawn.

Q: What kind of girl was she?
A: She was a tomboy.

Q: What is a tomboy?
A: A girl who acts like a boy and plays like a boy.

Q: Do you know anything else about the kind of girl she was?
A: No, just that she was a wild one.

Q: Did her mother like her?
A: I don't think so because she must have wanted her to be a lady.

Q: Did her father like her?
A: Yes, because it said he had a twinkle in his eye when he watched her.

Q: Did her sister like her?
A: Yes, sort of.

Q: Did her brothers like her?
A: Yes, they really liked her and must have thought she was like them.

Q: What did she look like?
A: I think she had two braids because it is on the cover and her hair was red.

The answers given by Roberta indicate her understanding of the text to be at a surprisingly high level for a seven-year-old; she brought enough knowledge to the text to assimilate it. She classified the kind of girl Caddie was—a tomboy—and how specific family members related to her. The only difficulty she had was the following: She said her mother did not like her, but her sister sort of liked her. She did not know the word "despair" and was unable to infer what it meant from the paragraph. Distortion of the meaning of the sentence took place at this point because she could not guess what "despair" meant. When children cannot modify their knowledge to infer the meaning of a new word, they often assimilate it to know the knowledge they already have, such as the general knowledge that mothers usually want their daughters to be ladies.

PIAGET

Jean Piaget's theory of knowledge is helpful in understanding comprehension; it states that we organize everything we know with two frameworks: a logico-arithmetical framework (that permits classification of what we know) and a spatio-temporal framework. All events take place in space and time, and adults can situate Caddie Woodlawn in Wisconsin and in 1864. Children, however, have not constructed a spatial framework or a temporal one, and it takes years for them to build these organizations. Likewise, it takes years for them to construct a logical framework such as classification systems of men and women, father and mothers, brothers and sisters, boys, girls, tomboys, etc. An understanding of numbers such as 10, 100, 800, 1000, and 1864 also belongs to the logico-arithmetical framework, and these numbers cannot be understood before nine or ten years of age.

SPATIAL FRAMEWORK

Because the interview up to this point did not reveal Roberta's understanding of where Caddie Woodlawn lived, we continued as follows—

Q: Where did she live?
A: In Wisconsin.

Q: Is that in another country or is it in America?
A: In America—is that right?

Q: Why do you think it is in America?
A: I know Wisconsin is a place in America.

Q: Is it a country?
A: Yes—is it?

Q: Is it a town?
A: No, it's like where we live in Alabama but different.

Q: Is it like where you live?
A: Yes, sort of but not all countries are alike—they have some thing different. If you are born in Wisconsin, you aren't an Alabamian.

Q: Is Wisconsin in the city or in the country?
A: It is in the country because there is a farm in the picture and Caddie must live there.

The above answers reveal that Roberta more or less knew "Wisconsin is in America" and "it is not a town." Although she did not know the word "state," she did know that Wisconsin and Alabama were alike.

When she used the word "country" to mean "state," we could see that the problem was a superficial one of merely not knowing the right label for the idea she had.

To explore her knowledge of spatial organization more explicitly, we asked her to show it in a drawing. We drew a circle on a blank sheet of paper to represent Birmingham and asked her to draw Alabama. As can be seen in Figure 1, she drew a circle around Birmingham and labeled it "AL." We then asked her to draw the United States and she drew an even larger circle and labeled it "US." On request, she drew a small circle for Wisconsin in the United States and marked it "WC." Following this, she was asked to think of another place to put on her map, and she selected New Jersey. She drew a little circle in Alabama outside Birmingham to show where New Jersey was located. She continued placing California, Texas, and New York—drawing little circles inside Alabama. When she was asked if New York was a city or state, she said it was city. Interestingly, whenever she drew a circle, she used initials to identify what it represented.

In her map, the part-whole relationships are very accurate as far as Birmingham, Alabama, United States, and Wisconsin are concerned. However, Alabama includes the other states as well as New York City. Classification of states and cities and spatial relationships develop together.

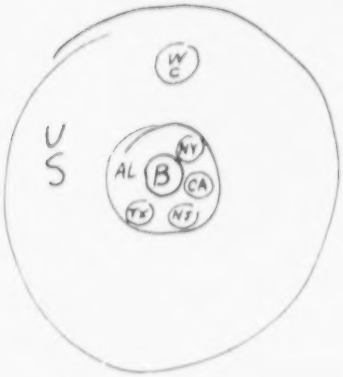

Figure 1

UNDERSTANDING A TIME LINE

To focus on Roberta's understanding of when the story of Caddie Woodlawn took place, we went on with the interview.

Q: How old was she?

A: Eleven.

Q: When did she live?
A: In pioneer days.

Q: When was that?
A: When settlers were here.

Q: What were settlers?
A: They were people who decided to settle down and stay.

Q: Where did settlers come from?
A: The north I think because cowboys were there too.

Q: What else do you know about pioneers?
A: Nothing.

Q: What did they ride in?
A: They had carts pulled by horses.

Q: Were there pioneers at the time of the pilgrims?
A: Not all of them but some of them were. Pioneers went on for a long time. Pilgrims and settlers did the same things. Pilgrims went in boats when they came but pioneers went in carts when they settled.

Q: Did pioneers live at the same time as the American Revolution?
A: Yes, there were pioneers then but some of them had to fight.

Q: Did pioneers live at the same time as the Civil War?
A: Yes, but they all wanted a free country.

Q: Do you think this book was at the same time as the Civil War?
A: I don't know if it was in that war or the First or Second World War. I do think that Caddie Woodlawn is dead.

Q: Was it about a hundred years ago?
A: Yes, because maybe she would be a hundred years old now.

Q: Was it 500 years ago?
A: Yes, because it was 1864.

When Roberta answered the question about when Caddie Woodlawn lived, she referred to the pioneer days and not to 1864. She did this because 1864 was meaningless both from the numerical point of view and from the viewpoint of her temporal organization. She was assimilating her new information into her old knowledge as revealed by her statements about pioneers, cowboys, and settlers riding in horse-drawn carts.

For Roberta, the pioneer days and historical events are one big whole that is not differentiated or sequenced in time. Interestingly, she orga-

nized history more through classification (the logico-arithmetical framework) than through a temporal framework. For example, she clearly stated that some of the pioneers were settlers who came in horse-drawn carts and some of them were pilgrims who came in boats. She also said that some settlers had to fight wars, but others did not. She thus knew something about the American Revolution, the Civil War, and the two World Wars but organized them in a category without any temporal structure (organization). Whether 1864 was a hundred years ago or 500 years ago could, of course, not be known by her either because seven-year-olds cannot understand place value (Kamii, 1985). Roberta nevertheless revealed her temporal understanding when she said, "I do think Caddie Woodlawn is dead."

In summary, what did Roberta understand about the paragraph? First, her understanding of family relationships was clear. In addition, her spatial organization was quite good in that she knew Alabama and Wisconsin were comparable and were in the United States. However, as revealed by her map, she thought other states such as New Jersey were in Alabama. Locating the time of the story was her weakest area. Nevertheless, she seemed to know it was a long time ago because she was quite sure the young girl, Caddie Woodlawn, had grown old and died.

IMPLICATIONS FOR TEACHING

Teaching reading comprehension is a subject of great debate today. Some reading authorities believe that comprehension consists of a group of segmental skills that can be sequentially taught through classroom games and worksheets and then tested by having students "'bubble" in spots on answer sheets. In contrast, the psycholinguistic view of reading to which we subscribe suggests that a reader puts meaning into the text, and therefore reading comprehension depends not only on the text but also on the knowledge that the reader brings to it. Piaget's theory helps us understand that this knowledge develops as an organized whole, and that children's knowledge can be assessed by the teacher.

If comprehension depends on the knowledge children bring to a text, it follows that our objective in improving comprehension must be to extend children's knowledge. This is not done by having children accumulate bits of information from the outside, but by allowing them to modify what they already know.

Children who read books they have selected for themselves are more likely to comprehend well because they are interested in the subject, and already have some knowledge about what they are reading. Those who enjoy a particular subject will often read several books on the same or related subjects. For instance, children who enjoy insects will often go from

one insect book to another, extending their knowledge of insects. Roberta, the girl we interviewed, was fascinated with nurses. She would probably enjoy books about Florence Nightingale and Clara Barton and these books would also help her put historical events into better relationships.

HELPING STUDENTS IMPROVE

There are many ways in which teachers can help students improve their reading comprehension. The three we will discuss below are: asking good questions, encouraging social interaction, and reading aloud to children—

Asking Good Questions: What is a good question? One answer is that a good question stimulates children to make new relationships and thus construct more knowledge. In the interview with Roberta we started with a general probe. By asking more and more specific questions we found that she did not understand the word "despair." To help her infer its meaning, we might have asked her to guess the meaning of "despair" by focusing on the word "But" in the sentence that follows the statement that Caddie was the despair of her mother ("But her father watched her with a little shine of pride in his eyes, and her brothers accepted her as one of themselves without a question."). We would of course let Roberta keep the text in front of her so she could refer to it when answering.

Questions should be based on an understanding of cognitive development. Asking a seven-year-old if the story of Caddie Woodlawn took place 500 years ago may have been good for our edification, but not for Roberta's education, because she could not even make sense out of the question. However, by fourth grade, children generally can be expected to understand place value better and would probably know that 1485 was before 1620. Temporal relationships are particularly difficult for children to make, as we learned from *The Child's Conception of Time* by Piaget (1946). Therefore, we would not try to teach the meaning of time, 1864, to Roberta.

Explanations are another kind of relationship. Following the reading of the paragraph from *Caddie Woodlawn*, when Roberta said that Caddie's father liked her, we could have asked her why he liked Caddie, the tomboy. We might then have asked her what she thought would happen in the story that would explain the attitudes of Caddie's parents. Focusing in this way should make Roberta more active mentally and prepare her to put her anticipation into relationship with what she will find later in the story. The desirability of predicting what will flow has been advocated by many people. Piaget's theory helps us think more precisely

about predictions in terms of a variety of relationships children might make.

Encouraging Social Interaction: An important point we have learned from Piaget is that we cannot make relationships for children; they have to make their own. For example, we might tell a group of seven-year-olds that Roberta thinks Caddie is dead, and ask them if they agree or disagree with that. They may not all agree that Caddie is dead, but they will grapple with different points of view and this exchange of viewpoints will often lead them to think critically and to construct new knowledge by trying to resolve differences of opinion.

Younger children would probably not use other dates to support their arguments, but fourth graders might, as they have a better idea about time. Also, by this age they might have read historical books about the Wright brothers, Robert E. Lee, Abraham Lincoln, Booker T. Washington, Florence Nightingale, and Clara Barton; the books would have added to their general knowledge and would have helped them establish more differentiated and coordinated ideas about time.

We would also help Roberta and her classmates to construct spatial relationships when we ask questions that would stimulate interaction among the members of the class. However, we must be careful not to expect seven-year-olds to think like ten-year-olds. A question we might ask would be, "Is Alabama like Wisconsin?" Some of the students would probably say yes and others no. The teacher should encourage students to argue about and defend their views. A student might suggest going to the map to locate Wisconsin and Alabama. Another student might speak from her/his own experience on a trip. Piaget's (1951) article, "The Development in Children of the Ideas of the Homeland and of Relations with Other Countries," has been helpful to us in understanding how children construct relationships between a country and the towns in it.

Needless to say, helping children build knowledge is not the same thing as giving them "right answers." For instance, we would not try to teach Roberta that New Jersey is not in Alabama unless a natural context presented itself.

Good teachers have always encouraged children to discuss what they read. Piaget (1947) and his collaborators (Perret-Clermont, 1980) have shown that the exchange of viewpoints contributes significantly to children's construction of knowledge, because children think critically when they defend their own ideas while being motivated to resolve differences of opinions.

Reading Orally to Children to Help Them Build General Knowledge: Listening to a teacher read aloud helps children extend their knowledge through books that are of interest to them. Children's literature is rich

with well-written books that intrigue children. Earlier we mentioned that children interested in insects might select books to read about insects. Also, we could read aloud other books about insects such as *The Grouchy Ladybug* by Eric Carle. Almost every issue of *Early Years* includes book reviews and interviews with authors, plus numerous columns by Carol Hurst and others that describe books which are very interesting to children and are also accurate in their contents.

When reading aloud to children, we should provide for discussion among the members of the class concerning the different meanings they are constructing as they listen. If Roberta's class were interested in pioneers, reading other books to them such as *Little House in the Big Woods* (Wilder, 1932) would help them build and modify their knowledge about pioneers.

Reading comprehension depends on the general knowledge a reader brings to the text. Knowledge of specific information, such as a historical figure like Florence Nightingale, depends on a logico-arithmetical framework and a spatio-temporal one. These frameworks are constructed by children as they assimilate new information. In other words, children cannot structure temporal sequence in history without any information about historical events to put into temporal relationships, and they cannot structure spatial relationships without information about places such as states, cities, and countries. This is why it's important for them to know about many different subjects because the more information they have, the better frameworks they are likely to develop. Further, the better their frameworks are structured, the better they will comprehend what they read.

The development of one framework depends on the development of another framework. For example, we saw in the temporal part of the interview that Roberta did not have much of an idea about the sequencing of time, but she had a surprisingly clear classification of "settlers," "pilgrims," and "pioneers." A child who has this classification scheme can use it to construct her temporal framework. Roberta also thought that Wisconsin definitely was not a town, and that New York was not a state. A child who has this classification scheme will be able to use it to perfect the spatial organization shown in Figure 1.

To extend reading comprehension, we must realize that children have to construct knowledge for themselves. So when was 1864? We cannot directly teach when 1864 was—only the child can construct it—and that's why it takes a very long time for a child to understand these four printed digits. Roberta—like other children—must construct number, historical events, and other knowledge through her own mental activity.

9. AUTHENTIC LANGUAGE ARTS ACTIVITIES AND THE CONSTRUCTION OF KNOWLEDGE

by Maryann Manning, Gary Manning, and Roberta Long, University of Alabama at Birmingham

In this chapter, Maryann Manning, Gary Manning, and Roberta Long describe a whole-language classroom with students engaged in a study of trees. The study began with an interest in the changing colors of leaves and extended to other areas. The authors describe students' construction of knowledge from a Piagetian perspective, using the study of trees to explain how new knowledge is constructed by exchanging points of view with others and by experiencing, listening, and reading. By engaging in expressive activities such as art, speaking, drama, and writing, the students elaborate and clarify their knowledge about trees.

Whole-language teachers try to make their classroom learning activities congruent with their beliefs about learning. Realizing that students bring prior knowledge and differing amounts of interest to any topic of study, they provide a variety of activities and allow learners to select those activities and topics that are of interest to them.

This chapter is based on the model, "Language Arts and the Construction of Knowledge," which appears in Reading and Writing in the Primary Grades, *by Maryann Murphy Manning, Gary L. Manning, Roberta Long, and Bernice J. Wolfson (Washington, D.C.: National Education Association, 1987).*

Not long ago, we walked into a whole-language fourth-grade classroom we often visit and observed two students enacting a short play they had written. One of the youngsters, playing the part of an oak tree, was arguing with another student who was playing a pine tree. The two were debating over which type of tree helped human beings most. The oak tree said, "Every fall of the year the roads are covered with cars that have come from cities so that people can see the beautiful colors of my relatives and me." The pine tree retorted. "Think about how many pine trees die just so people can have Christmas trees." And on the dialogue went.

The room was alive with the study of trees. During the lunch break, we discussed the tree dramatization with the teacher, Mrs. French, who told us about the events that led up to it. The leaves of a tree in her yard

had turned a beautiful golden color, and she brought several of them to school to share with her students. The next day, some of the students brought in red and brown leaves. The different-colored leaves in the classroom sparked students' curiosity. Animatedly they discussed whether the leaves of all trees have the same colors and which colors appear first. Mrs. French encouraged the discussion because she knows that when children exchange points of view they construct new knowledge.

The teacher related some of the conversation as students expressed their ideas about leaves. Jessica said, "Most of the leaves on the ground are brown, so brown must come last." John disagreed. That leaves would change colors from green to yellow to red and finally to brown didn't make sense to him because he had observed a tree in his yard with leaves that turned from green to yellow and a tree next to it with leaves that turned from green to red.

When we returned to Mrs. French's classroom, walking around the room and interacting with students, we became increasingly aware of the depth and breadth of this unit of study on trees. Some students, for example, were compiling statistics about trees; others were engaged in reading about them. A variety of activities was going on, as the teacher had encouraged students to explore the study of trees in ways that were meaningful to them.

As we observed the students, we thought about how much more meaningful these activities were than those we see in some other classrooms. When students plod through a language textbook, write letters to fictitious people, or read an uninteresting story from a basal reader, little excitement about learning is evident. In such classrooms there is no link to the daily life experienced by students—hence, little relevance. To make classroom activities relevant is not easy. As Mrs. French confided to us: "There are so many students with different backgrounds, interests, and academic abilities that it is difficult to make all activities relevant all the time for all the students." Still, she never loses sight of her ultimate goal of making learning meaningful to specific students in a specific place at a specific time. She allows students to select their own topics for study and explore them in ways that are meaningful to them. For reading, students select their own books and confer with the teacher about the books read. They select ways—puppet plays, dioramas, and dramatizations—to share selected books with classmates. In writing, students select their own topics and write in different genres. As Mrs. French implements the writing program in her classroom, she uses the ideas of Donald Graves and Lucy Calkins (see Chapters 17 and 21). In short, she helps students construct knowledge. Let's look at how she does this in more detail.

According to Piagetian theory, students construct new knowledge by